From the system builders. The system builders' computer.
Argus 700 Series 2.
FERRANTI Computer Systems

Rohan Computing
DEC LA34
DEC VT100
Ex-stock
Ring for price
Tel: Southam (0926) 4045

Logica sets date for Cambridge Ring

SUCCESS with its in-house Cambridge Ring network has led Logica to lay plans for selling the system as a general purpose networking product during the first half of 1981. Standard access logic boards for common equipment such as the PDP 11 Unibus will be available. Logica's own development work is with word processors, in which VTS-100 stand-alone machines can talk to each other or to two 300 megabyte discs, producing a kind of "distributed shared-logic system" (CW, November 8, 1979).

Facilities for carrying voice on the same wires are under development, including store-and-forward and automatic call set-up.

Logica feels the Cambridge Ring is particularly suited to digitised voice traffic because of its low latency, stemming from the small miniparkets (16 bits of data with 24-bit headers).

About 1½ to 2K of code is used in each word processor to handle the Ring protocol. Modifications to this to handle the new 2200 word processor, to be marketed by Nexos, will be fairly straightforward, the Logica development staff feel.

Logica expects to sell the Ring mainly to other systems houses for incorporating into products. There is a possibility that Nexos would sell a small system using the Ring, since staff there are beginning to feel they will need a cheaper product in the office system market in addition to the large-scale Delta system they have been concentrating on (CW, January 31).

US network for Euro debut soon

A LOCAL networking system developed in California is ready to be sold into Europe in bulk, only four months after US deliveries began. Called Net/One, the system is made by Ungermann-Bass, a company set up last year in the heart of Silicon Valley by two top ex-Zilog people.

One of them, Ralph Ungermann, had been a co-founder and the other, Charlie Bass, general manager for microcomputer systems.

Based on coaxial cable links and multi-microprocessor network interface units, the system uses a processor-independent Ethernet-like protocol compatible with the version developed jointly by Xerox, Intel and Digital Equipment with the aim of establishing a standard for local networking.

Up to 250 network interface units, each with up to 15 devices attached, can link to a single network segment and these can be chained together so that ultimate capacity is said to be virtually limitless.

Each cable can be 4,000 ft long and carries data at 4 Mbps. Devices attach to the interface unit through a serial RS 232C port or a 16-bit parallel port based on the Zilog Z80 PIO interface chip and can transmit at up to 200K-bps in bursts.

But it is also possible to attach directly to the processor-independent internal bus of the network interface unit and transmit in bursts at up to eight megabytes per second into the buffer area.

Cost works out at between $500 and $1,000 per device attached. First European delivery was to Lausanne Polytechnic, Switzerland, in August. Bass told Computer Weekly he expected entry to the European market to be as successful as Zilog's, with the difference that it would generate more repeat business.

Company president Ralph Ungermann said he would be looking for European agents when he and marketing manager Jim Jordan come to London to take part in the Yankee Group conference Alternatives for Local Networking on October 21 and 22.

He claims his is the only company in the world offering a dedicated, fully supported, processor-independent local area network. The UK's Cambridge Ring is nearing completion (see above) and Xerox's Ethernet and Datapoint's ARC are both tied in to their data processing products, he says.

Contention is used to control network access and addressing is hidden from the user, who can give a symbolic name to target devices. Network interface units are user-programmable and a development system is supplied for writing interface software.

Ungermann and Bass left Zilog in January 1979 and set up the company with their own funds in July 1979. In January this year they attracted private venture capital from three major local investors: Adler & Co, Bessemer and Oak Investments.

NEWS IN BRIEF

Double boost for Cray

SERVICES firm United Computing Systems is to upgrade its Cray 1 to a Cray 1S with twice the memory. The million word machine is due for delivery in December and will be available by January 1981.

Cray Research is to extend the lease on its system at the UK's Science Research Council at Daresbury until 1983.

IBM great . . .

IMB has reported a strong boost in third quarter profits, up 32 per cent over last year's poor third quarter at $884 million on turnover up 20 per cent at $6,400 million. The increase in profits is attributed primarily to a strong sales to rentals ratio.

NCR good . . .

NCR has reported net profit for the third quarter up 15 per cent at $54.5 million on turnover up 12 per cent at $792.3 million. It reported a slight advance in incoming orders during the quarter.

. . Burroughs bad

NOTHING is going right for Burroughs at the moment. After its very poor showing in the UK and German sections of the Datapro poll (CW, October 9), the company has had its second profit setback running. Third quarter profits fell almost 32% to $42.2 million on turnover up 4% at $699 million.

DoI scraps bottom limit on MAP aid

SMALL firms are to be helped more by the Department of Industry's Microprocessor Application Project by scrapping the existing lower limit of £10,000 on costs and by a speeding up of the appraisal process for project proposals. A normal upper limit of £500,000 is now being imposed however.

Applications to MAP for support for computerisation projects is holding up despite the recession, DoI officials report, as the project approaches the end of its second year. Projects in other fields are being cancelled or postponed, it is pointed out.

So far MAP has spent £ million on training and awareness, including seminars, workshops and short courses, £3 million on consultancy and £15 million on project support for the use of micros in industry. The remainder of the original £55 million committed by the Labour government is still available to be spent.

Applications are still coming in at about 25 a month. Of the 900 received so far, 345 have been approved, 445 rejected, and the remainder are still under consideration.

So far about 10% of consultancies have turned into hard projects and this is not considered low, allowing for the six-month gap between the two. Another 10% of the firms involved decide definitely not to press ahead with using micros.

Lack of awareness of the potential of micros is still widespread despite all the publicity the scheme has received, says the DoI. A few shipping lines had looked at the matter and decided there was no use for micros in its business even though other shipping firms were very keen.

There had been a marked change in the attitude of banks towards technology, the DoI finds, and they are working closely with the Department on assessing projects which they might support.

However, tapping private sources of finance is still a problem, due, the Department feels, to a communications gap.

TV licence

THE BBC has licensed Eight until its Television Graphics Microcomputer which is designed for graphics artists to draw images on a TV monitor, ... with an 8-bit per address ... structure and a digitising ...

The quality line-up for a great performance

Magnetic media ...
JMF (COMPUTER SUPPLIES) ...
For quality and service – 01-428 091...

Ex-IBM man for Exxon

THE umbrella marketing organisation for Exxon's diverse products companies has now been officially unveiled, with the name Exxon Office Systems. In addition to handling existing word processors and facsimile machines, the new group incorporates Summit and Xonex, the companies working on Exxon's office of the future, supervised by Dan Matthias, formerly head of electric typewriter venture Qyx.

Former IBMer Bob Coutino is president of Exxon Office Systems, (CW March 20), and Pat de Cavaignac, founder of Vydec, heads the international division.

The new company is part of Exxon Information Systems which has also just set up a Communications Systems Group consisting of Delphi Communications, Periphonics, Vortex and Intecom. These make a multiprocessor for telephone switching voice synthesisers, voice recognition equipment, and PBXs respectively.

New Data Recall chief named

DETAILS of the settlement between word processor maker Data Recall and its bankers Kleinwort Benson have now been finalised, resulting in Data Recall becoming a subsidiary of the bank.

Kleinwort Benson's direct involvement in the management of the company, as opposed simply to supplying funds, consists of taking a share of over 75% of the equity and choosing a new managing director, Anthony Sumner, to replace founder Eric Jones (CW, October 9).

Robert Brooks, of Kleinwort, who takes over as chairman, described the bank's actions as intended to "give us greater control over the operation of the company." An additional £664,000 is being provided to Data Recall for product development. 1979 turnover was £2.2 million.

Prior to this deal, 75% of the voting shares in Data Recall were owned by Jones and John Bolton of Solartron.

Univac gives ICL an opening in the US

● From front page

should just about meet the requirements of disaffected 90/80 users, after which it would be a straight fight between converting to OS/1100 and VME/B.

In the Siemens case the company's biggest machines are dual processor models and there is no dual processor version of VS/9 at present. Eventually users would have to convert to the newer BS 2000 operating system, which would be similar to moving from Siemens' BS 1000 to BS 2000, not a particularly easy conversion, although there is plenty of experience for it.

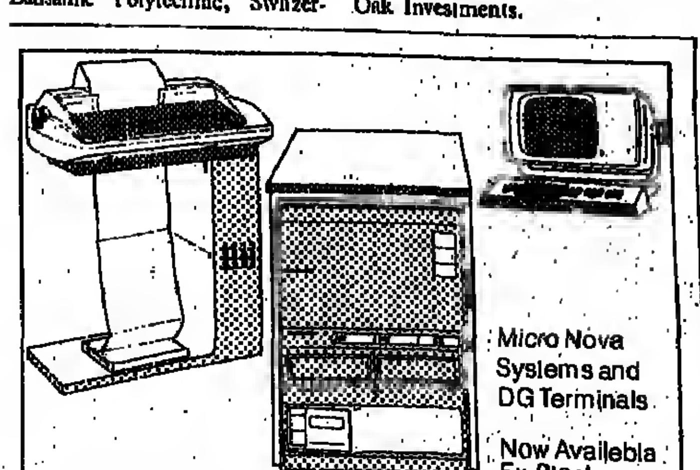
RCA was something of a whore with its licences, and an even more attractive alternative might be to move to Hitachi's M-series machines, which run the company's VOS operating system and also had their origins in Spectra 70.

The disaffection of VS/9 users expressed earlier this year (CW, April 4) indicates that a substantial part of the base could be up for grabs to the highest bidder.

Optic fibre experiment

OPTICAL fibre links are to be connected to about 20 houses in Milton Keynes next year in an experiment by British Telecom to explore the provision of wideband services to subscribers.

The links will be built in to new houses and used to supply television and radio programmes, as is already done by a coaxial cable network elsewhere in the town. But whereas in the cable network all the programmes are piped in simultaneously on different carrier frequencies and selected by tuning the receiver, in the optical fibre network only one programme is ...


Micro Nova Systems and DG Terminals
Now Available Ex-Stock
DATAGENERAL
Prices start from £4460 for the MP100 and £5076 for the MP200 systems. Systems range from floppy disc through cartridge to Winchester storage.
Comma offer 'off the shelf' delivery of complete Micro Nova Packaged Systems as well as Expansion Memories, Communications Options, Interfaces and comprehensive Operating Systems Software.
Data General Printers and Dasher Terminals are also available ex-stock.
COMMA COMPUTERS LTD
OEM DISCOUNTS AVAILABLE
Branches in Birmingham, Bristol, London, Manchester
BRENTWOOD (0277) 811131

to ensure first class service, top quality and total dependability
Contact
manufacturers of High Quality
Rush Deliveries Are Our Speciality
NATIONAL WORKS
HALL STREET, DUDLEY
WEST MIDLANDS

Number 729 Thursday, October 23, 1980 Price 25p

UNIVERSITY OF JORDAN LIBRARY

FIXED COST TIME-SHARING
Peter Merrick Associates
Phone 01-688 6847 Croydon

Japan to develop 10,000 megaflop

A SUPERCOMPUTER with a similar parallel architecture to ICL's Distributed Array Processor but with a power rating of up to 10,000 million floating point operations a second could be in operation in Japan by the end of the decade.

Its performance will be achieved by employing Josephson Junction or Gallium Arsenide semiconductor technology in each of the microprocessors in a 32 x 32 array.

The 10,000 megaflop machine will be developed by the Agency of Industrial Science and Technology, part of the Japanese government's Ministry of International Trade and Industry, at a cost of around £60 million.

The eight-year project is expected to start next year and will be carried out by engineers previously involved with the four-year MITI-sponsored VLSI development programme which ended earlier this year. That programme cost about £120 million, half of which was provided by the government and the rest by five major Japanese-based computer manufacturers, Fujitsu, Hitachi, Mitsubishi, Nippon Electric and Toshiba.

The 10,000 megaflop parallel processor is intended mainly for government use in areas like nuclear research and meteorology, and MITI hopes that its development will contribute to the government's ambitious but very long-term fifth generation computer programme, which at present is at the study stage.

A committee made up of top computer scientists was set up last year by the government-sponsored Japan Information Processing Development Centre to define precisely the facilities that should be provided by fifth generation computers and its investigations are expected to continue for at least another year.

But one of the key characteristics of the fifth generation is assumed to be the dominance of processors employing architectures different from the conventional von Neumann approach.

94,000 readers of CW

COMPUTER WEEKLY'S circulation has topped 94,000, making it the highest of any UK computer journal.

The increase reflects a higher demand for the paper created by the growth in the computer market – a growth we continue to share.

Computer Weekly has reached a steadily increasing readership since it was launched as the first of its kind in this country in 1966. Then the circulation was just 10,000.

The new figure will be revealed in returns to be published by the Audit Bureau of Circulations (ABC) for the January-June period this year.

VLSI man for IBM

A KEY executive of two Japanese government-subsidised high technology computer organisations has resigned and is about to join IBM Japan, a growing competitor for Japanese-based companies in the VLSI development race.

Masato Nebashi was managing director of the VLSI Technology Research Association and also of the Electronic Computer Basic Technology Association which was set up to promote the development of Japanese systems software. Both organisations are affiliated to MITI, the Ministry of International Trade and Industry.

Nebashi has confirmed the move but has yet to disclose any further details about his departure to the computer industry giant. A spokesman for IBM Japan said that the employment of Nebashi was simply part of the company's routine recruitment policy to hire any really capable human resource from outside IBM Japan.

Boost for Amdahl Comms processor

AMDAHL Corp has finally announced its communications processor – and the reason for the delay is now apparent.

The company has been talking to Fujitsu about that company's 2806 communications processor for about a year (CW, January 10). However, the processor announced by Amdahl, the 4705, is based on 2806 technology, but has been enhanced by Fujitsu for more processing power and better IBM-compatibility. Fujitsu is now building it to Amdahl specifications.

It is at present offered only in North America, for delivery before the end of the year. The European marketing plan is to be announced later and the processor will arrive here in the third quarter of 1981.

Four models are offered, all with from 64 to 512K-bytes of main memory. The 4705-5 takes up to 64, the 4705-6 up to 160, the 4705-7 up to 256 and the 4705-8 up to 352 lines.

Cheaper

In Amdahl benchmarks against the IBM 3705-II, a similarly configured 4705 rated 1.8 times the throughput – or aggregate data rate – of the IBM device, and it is between 10% and 15% cheaper. Prices range from $60,000 to $350,000 in the US, and monthly maintenance is between $300 and $1,500.

The 3705 runs the Network Control Program, an integral part of IBM's Systems Network Architecture. Amdahl has not yet announced any additional software for the 4705, but has some under development.

Having acquired Tran Corporation earlier this year, the company is now well placed to offer compatible but competing network solutions to IBM and compatible users. Tran offers a multi-protocol communications system with a Computer Automation mini as the master controller.

Data General to broaden its scope

DATA General is looking to make acquisitions of companies in the fields of graphic systems, office machines, data communications products, process control, test and measurement and instrumentation. It has set up a special internal group to seek out likely candidates for purchase, especially in those fields.

The Massachusetts minimaker has just finished a difficult year, and president Edson de Castro told securities analysts earlier this month that computer equipment revenues for the company's final quarter, ending September 30, might well not come up to expectations.

He said that the recession had caused a reduction both in orders and shipments, and that the effect could continue into the early part of the current financial year. He also expected margins to fall short of the 17.2% achieved in the third quarter, since the company's overall business plan had been geared to a higher level of business activity.

Business had softened, he said, with customers who placed orders early in the year, following resolution of component shortages, proving reluctant to take delivery as the recession began to bite.

However, as with many other US companies, foreign business, particularly European, is holding the figures up, and the new 32-bit mini, the MV/8000, has been an instant hit.

Data General has made the switch from investing in hardware development to investing in software and expects this to grow at the same rate as the company's overall projected growth rate of 30%. The company is also investing in mass storage innovations, systems architecture and communications.

De Castro sees the industry polarising into a first tier of broad-band suppliers like Data General, and a second tier of smaller companies concentrating on a single industry, type of product or geographic area. He expects more acquisitions and mergers to take place.

● Data General has opened a new office in the City of London, at Adelaide House, King William Street. At the formal opening, Wayne Fitzsimmons, the new UK general manager at Data General, looked forward to the UK launch of the MT/80 series of terminals (see page 3), saying that they would be offered at "alarmingly low prices".

Reversal for Memorex

THIRD quarter results for Memorex announced this week show a loss of $4 million on a turnover of $190 million, following the $22 million loss in the second quarter (CW, July 31). Clancy Spangle, who took over as chairman in January, said this represented a reversal of the downward trend of the last 18 months.

The reasons he gave for the loss were continuing high costs of manufacturing, inventory and new product start-up, set against falling sales to leasing companies.

But improved efficiencies were leading to a recovery and this would be aided by the new products now coming on the market, he added.

Last week Memorex launched three of its new products in the UK: one is the 2078 display station which is a £1,144 alternative to the IBM 3278 featuring a tiltable screen with a non-glare surface, and two terminal controllers.

The second, the 2076, is an alternative to the IBM 3276 which links up to eight VDUs or printers to a communications controller via a 9,600 bps link using the bisync protocol. It costs £2,073.

The third controller, the 4370, can control up to 32 synchronous data links running at up to 9,600 bps, although applications for more than 16 lines would be expected to use the existing 1270 product. A 16-channel unit costs £24,000, while a four-channel unit costs £14,625.

Future announcements are to include controllers to handle X25 and SNA protocols and a new matrix printer, while Memorex is still developing its high capacity thin film head disc storage subsystem to compete with the IBM 3380 expected to be announced early next year.

INSIDE THIS WEEK'S CW....

Computerview on jobs 2
Letters 2
1984 and all that 2
Anal decision on recursion 3
Downtime 4
Power to the highest bidder 4
A simpler way 4
Ten years ago 4
Jobs outfit caned 5
Investment warning 6
Puzzler 6
Boost for non-VSE users 7
Cutting out boring work 8
Gate array – latest 8
People and events 10
Governor-General's warning 12
9,600 bps modem bid 14
Controlling complex networks 15
Coming out of the depression 16
Data analysis 17
Sales Bit on dismissals 37
Prize crossword 37
Puzzle answer 37
Computer Forum decision 40
JOB OPPORTUNITIES: Pages 20-39

The competition judges (left to right) Steve Shirley of F International, John Major (background) of the DoI, and Walter Beveridge, HM Inspector of Schools, Scotland, examine an entry in the DoI's mini competition.

Contest all won

THE quantity and quality of entries in the Department of Industry's minicomputer competition for schools have been so high that the Department has decided to give hand-held micros to all 650 schools that entered.

Sir Keith Joseph presented "star" prizes of enhanced Research Machines 380Zs to the top six schools in the competition.

Another 115 schools won 380Zs in configurations worth around £2,000. Of the prizes, 100 were provided by the DoI and the rest donated by industry. More are still being donated.

The schools had to submit proposals for what they would do with a machine once they got it. Entries ranged from developing a school teletext system to programming new dance movements.

PAYE study ready soon

THE study put in hand by the Treasury in August to take a fresh look at the computerisation of PAYE will be submitted to the Cabinet well before the end of the year, according to the Treasury.

This urgency indicates that the government is still anxious to award ICL the massive contract before the single tender policy expires.

The study is expected to recommend that the project progress more slowly and cautiously than originally planned, but that it should not move away from the centralised approach involving 12 big centres linked in a network. If the government adopted a decentralised approach involving small machines at each local PAYE office, the single tender policy would not apply.

Death of pioneer

THE death of one of the fathers of Soviet computing, Mikhail Lavrentiev, has been reported by the Soviet News Agency, Tass. He was 79. Lavrentiev was latterly responsible for the creation of the "science city" of Akademgorodok, in the heart of Siberia. He was a member of the Soviet Academy of Science responsible for Siberia.

RAPPORT
the proven Relational Database System.
■ Running on 18 different machine ranges
■ Over 50 installations in Industry, Commerce Government and Research
Relational databases are easy to understand and easy to use – but are they practical? RAPPORT gives you the practical features needed to manage a working database – indexing for fast retrieval by any key – powerful, readable program commands – interfaces to FORTRAN, COBOL and CORAL – physical data independence – full update logging and recovery – support of multiple users – Interactive Query Language – data access protection to field level.
To find out more, write or phone quoting ref. RA/1, to –
logica
Colin Banfield
Logica Limited
68 Newman Street
London W1A 4SE
telephone (01) 637 9111

COMPUTER WEEKLY

Vol. 29 No 729
Thursday, October 23, 1980

Editor
Simon Timm 01-261 8033

Advertisement Manager
Harry Hutson 01-261 8359
01-261 6603

Class Ad Manager
Brian Durrent 01-261 8597

Publishing Director
Dr J. A. G. Thomas

Editorial Director
Chris Hipwell

IPC Electrical Electronic Press Ltd, Dorset House, Stamford Street, London, SE1 9LU. Telegrams/Telex: 25137 BISPRS G

Branch Offices:
Birmingham: Lynton House, 7/4 Walsall Road, Birmingham, B42 1DA. Telephone 021-356 4838

Manchester: Grove House, Station Road, Old Trafford, Manchester M16 0WL. Telephone 061 872 8861.

New York: 205 East 42nd Street, New York NY 10017. Tel. (0101-212) 867 2080.

Published weekly on Thursday.

Registered at the Post Office as a newspaper. Price per copy 25p.

© IPC Business Press Ltd 1980.

EDITORIAL		
Keith Jones	261	8344
Tim Palmer	261	8031
Claire Gooding	261	8303
Mary Johnston	261	8026
Eileen Steiner	261	8806
Bernard Allen	261	8036
Pamela Rowe	261	8361
Paul Fisher	261	8170
Donald Kennett	261	8718
Mike Marples	261	8042
Don Mitchell	261	8042
Chris Vouell	261	8543
Nancy Pocock	261	8543
Julie Cotterill	261	8543
ADVERTISING – Display		
Chris O'Hea	261	8666
Steve Bass	261	8002
Ian Carter	261	8109
Kenle White	261	8293
Manchester		
Harry Aiken	061-872	8861
Birmingham		
Kes Parrott	021-356	4838
ADVERTISING – Classified		
Chris Prier	261	8028
Ken Walford	261	8018
Ian Feus	261	8097
Neil McDonnell	261	8004
Philip Kirby	261	8098
Denise Smith	261	8484
Julia Hennaford	261	8002
Kevin McOwen	261	8002
Manchester		
Owen Kelly	061-872	8861
Birmingham		
Viv Sharnt	021-356	4838
Production		
Roy Kelly	261	8016
Steve Robinson	261	8578
Peter Regis	261	8616

Computer Weekly has a circulation each week of over 94,000 including the highest fully requested circulation in the UK.

Controlled circulation department: IPC Business Press (Sales and Distribution) Ltd, 40 Bowling Green Lane, London EC1R 0NE Tel: 01 837 3636. Subscriptions (one year) for readers outside the above categories: UK £18, UK Students £9, overseas £30, overseas students £15, US and Canada $78, US and Canadian students $39. Back number price 78p. Airmail to Middle East or North Africa £40.38. Airmail to rest of Africa, North and South America or South Asia £51.84. Airmail to Far East or New Zealand £57.40. Applications for subscriptions should be sent to: IPC Business Press (S&D) Ltd, Oakfield House, Perrymount Road, Haywards Heath Sussex. Tel: 0444 59188.

ISSN 0010-4787

COMPUTERVIEW

The DP industry has come of age

THE current recession is the third to hit the world economy since 1970.

In the first, the computer industry suffered hard, with major companies like RCA and General Electric finding the pace too hot and leaving the mainframe business.

In the second, the computer industry was much less severely affected, and the two major withdrawals were those of Xerox and Singer — although in Europe marginal mainframers Philips and Datasaab threw in the towel also.

This time the computer industry is riding the storm with scarcely more than a touch on the tiller to avoid its worst ravages.

Third quarter figures from five of the big US mainframers — IBM, Honeywell, Burroughs, NCR and Control Data — are mixed, but those reporting storm-damaged figures — Burroughs and Honeywell — attribute them primarily to production problems which can hit companies in good times and bad, not to the recession itself.

In Europe, ICL is implementing a broad range of cost cutting measures, concentrating resources on the two most vital areas, selling and research and development, at the expense of the important but ultimately discretionary activities that come between. The company will report its 1979-80 figures at the end of the year with less than euphoria, but there is no evidence that it is in any kind of serious trouble.

Siemens is still looking forward to a good year on mainframes, having at last got its computer operations into profit.

Only CII-Honeywell Bull's figures have looked seriously storm-damaged, but the company always does much better in the second half of the year, and now has the financial resources of St Gobain behind it.

Among the US minimakers, only General Automation still looks in serious trouble, and is too large a company not to find a rescuer if that should become necessary. Computer Automation seems to have sorted out its problems in double-quick time, and, like Inforex, ran into trouble with no help from recession.

The semiconductor manufacturers still look substantially recession-proof, and it is primarily to small companies — systems houses and OEM systems builders — that one has to look for the likely casualties.

At the time of the 1975 recession, we expected a major slump in job opportunities which never came. So far, all the evidence from Computer Weekly's back pages is that the softening in demand for people is shown up in comparisons with the boom time of 1978 and early 1979 rather than against the underlying trend.

Yet fear is much more widespread this time than it was during the last recession. Staff turnover among Civil Service computer personnel has slumped from a usual 15% per annum to 5% or 6% this year.

The implication of this is that staff are sitting tight where 18 months ago they might have considered a move: a job held is worth two in prospect.

However, the shortfall of the right computer people remains, and so the classified pages still burgeon with unfilled jobs.

This disguises a serious recessionary problem: anything which is discretionary tends to get shelved. The implication of this is that companies in the word processing field would appear to be the most vulnerable, though so far there is not much evidence for this. If things do get worse, it will be companies which offer word processing on the back of data processing which will be hit least.

On the employment front, the human element is clear. Computer Weekly has received many letters from graduates of TOPS courses who cannot get jobs because they have no experience; where there are other handicaps, the prospects are even worse. On a TOPS course for disabled people at Queen Elizabeth College, Leatherhead, only three out of 11 people have so far managed to find employment (see page 5).

All the evidence, therefore, is that the computer industry has reached full maturity, and is as near recession-proof as any major economic activity can be.

And as far as the UK is concerned, despite the cries of anguish from industry about the catastrophic effect of the high pound, one of the few bright spots in the economic scene is the continuing surge of exports. The success of the ICL 2900 in international markets suggests that the computer industry is making its full contribution to this effort.

LETTERS to the EDITOR

Outmoded languages for microprocessors

ROY ATHERTON (Letters, October 9) is right to question the merits of using outmoded languages such as Fortran and Basic in an educational context. But buyers of micros, in whatever context, are frequently more concerned with availability, reliability, ease of service and value for money, when choosing and selecting a machine to meet their needs. This is why micros like the Pet and Tandy are so popular.

The common denominator with these micros is the language Basic, and if anyone is considering developing software for use on many different micros then using Basic is likely to give it the widest acceptability and portability.

Herein lies a dilemma, either to use a popular "unstructured" language like Basic or a less widely available "structured" language like Pascal. Within BIS we identified this problem some two years ago and so have developed a pre-processor for Basic which enables programs to be written in a "structured" form. These programs are completely independent of GOTO statements and line numbers.

We have been using this pre-processor, which we call Structured Basic, on several projects to develop Skills Database, Applicants Database and several other systems on CP/M, MBasic and DEC machines. The main benefits we have found with using it is that the programs are much easier to understand and maintain, use less memory and run more quickly.

This pre-processor is really only an intermediate step. Basic as a standard should have "structuring" logic, i.e. "DO WHILE", "IF-ELSE-ENDIF", "CASE", etc to bring it up to date. Cobol is going to have these features in its next release, so why not Basic?

D. BURDETT
Senior Consultant
BIS Applied Systems,
London SE1 7UT.

IN reply to Roy Atherton's letter (CW, October 9) headlined "Years ahead of the Tandy and Pet", I write to let you and your readers know that we are teaching Pascal to some 220 first-year students, using Commodore Pets as the vehicle. To the best of my knowledge the Pet is the cheapest way of providing interactive Pascal available at present.

Prof A. J. T. COLIN
Dept of Computer Science,
Strathclyde University.

YOU published (CW, October 9) a letter from Roy Atherton of Hulmeside College in which he states that two Danish systems, SPC/1 and RC Piccolo, because they have Pascal and Coral-80, are literally years ahead of the Tandy and Pet microcomputers.

I have had UCSD Pascal running on my Tandy TRS-80 Model I for several months, and an excellent Pascal implementation has just become available for the Pet.

L. F. HELLER
Newport Pagnell,
Bucks.

THE EDITOR welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

Second revolution

WE are beginning to collect experience of teaching general managers the use of microcomputers. In my view the majority of UK managers (about 70 per cent) have resisted the mainframe computer revolution completely. The second revolution will be less easy to resist.

The mini and the micro penetrate the job itself and are not merely overarching gods. For an example, the changes in the job of supermarket manager, with the introduction of wand data processing at all the checkouts, are of kind and not of degree. The introduction of mainframe ordering at the head office merely gave him or her a different "person" to shout.

The problem of teaching managers is their almost total lack of numeracy. This is not merely in the older managers but seems general. I would be interested in readers' comments on the perceived problem and solutions. I find no difficulty in getting people to use the video display terminal machines and to make the use of Basic. Beyond that, many blank stares.

Dr MIKE [illegible]
Assistant Director
Management Development Programme
Bradford University

Last word — from Pascal

WHAT Roy Atherton says is very true (CW, October 9). I remember a very enjoyable evening we spent together in discussing this very point. The problem is that I am in the business of training people to fill the needs of the present computer industry. You have only to look through the pages of your own newspaper to see there is not really a market for Pascal programmers or Coral 80 and this is really the trouble with education, isn't it? If we are not careful we try to lead the field instead of meeting the needs of industry as they are now.

It would be very interesting to find out the percentage of programming jobs that are for Cobol programmers, and then the percentage of those older children who are being taught programming that are learning Cobol. You could do the same with Basic and Fortran.

Nous ne vivons jamais, mais nous espérons de vivre; et, nous disposant toujours à être heureux, il est inévitable que nous ne le soyons jamais. — Pascal.

PAUL BRAZIER
C.I.O. Computer Studies
HM Prison,
Leyhill,
Wotton-under-Edge,
Glos.

1984 and all that . . .

CONTRIBUTIONS from readers are welcome for our column of the strange things people say in the media about computers. We will pay £5 for each item we publish.

I have just been reading, for the umpteenth time, an article pointing out that there is no such thing as a stupid computer. Only stupid programmers.

Next question: why, then, do all computers have stupid programmers? The reception desk at my New York hotel had a computer which meant that the business of registering your name, and getting a key to a vacant room, now takes 15 minutes. It used to take 15 seconds, by hand.

If any hotelier in this country is tempted to instal a similar marvel of technology I will give him some advice, free of charge, that will save him millions. It doesn't work.

GOVERNMENT COMPUTER REQUIREMENTS

MINISTRY OF DEFENCE
ARMOUR SCHOOL, RAC CENTRE, BOVINGTON
Ref. No. (CP16/26/CW)

A minicomputer system together with six microcomputers is required by the Armour School, RAC Centre, Bovington to support training. The systems will be required to support the following basic tasks: Computer Aided Instruction, Engineering Calculations, Student Records, Program Development. The minicomputer and Microcomputer systems are not required to communicate directly with each other. Detailed requirements include hard and floppy disc storage, one high and one low level graphics terminals, fast character printer, graphics hard copy unit and three TV monitors. Six microcomputers together with peripherals are also to be supplied. Facilities for programming in Basic on both systems are required together with certain application packages.

Applications for copies of the Operational Requirements should be sent to the CENTRAL COMPUTER AND TELECOMMUNICATIONS AGENCY (Con. 8A/1), Gildengate House, Upper Green Lane, NORWICH NR3 1OW quoting the appropriate Reference No. shown above. Completed proposals must be received not later than 21 November 1980.

Wilkes Computing for Terminals

digital
LA34 VT100
LA120 LA180

Anadex Ltd.
DP9500 DP9501
LOW COST 200cps
BI-DIRECTIONAL PRINTERS

VISUAL 200
*LOW COST
*HIGH PERFORMANCE
DETACHABLE KEYBOARD
SWITCHABLE EMULATIONS
SMOOTH SCROLL

NEWBURY LABORATORIES LTD
NEW 7000 RANGE

TEXAS INSTRUMENTS
TI810 TI825 TI765
TI820 TI745 TI743

Wilkes Computing
Tel: (0272) 25921 Telex 449205

£200,000 order from French systems builder

AT the same time as launching its family of Atlas LSI-11 based systems, Karlin Computer Services of Hayes, Middx has received an order worth over £200,000 for 50 systems from French systems builder, Institut Programmatique et Cybernetic.

The Atlas family, which comprises eight DEC LSI-11/2 and LSI-11/23-based systems, is being manufactured at the company's new plant in Hayes. KCS claims to be able to produce 50 systems a month and expects to ship at least 200 systems in the UK by the end of next year.

The smallest member of the family, the Atlas 723A is a table top single user system costing from £6,790. It runs on the LSI 11/2 processor with 61K-bits of RAM and a dual drive floppy disc with 2.5 Mbits of memory. It can be upgraded to an Atlas 733, which is LSI-11/23-based and can support up to four users.

The largest in the family is the Atlas 736 costing £14,650. All systems run the new multi-user, multi-tasking Karlin real time operating system, KOS-11, a derivative of Net-11.

● The Hayes-based minicomputer and maintenance company, a wholly owned subsidiary of Karlin Computer Holdings, has recently been granted an injunction restraining a previous supplier General Robotics of Wisconsin, US, from trying to wind up the firm.

General Robotics claims that Karlin Computer Services should be liable for the debts incurred by sister company Karlin Computer Systems before receivers were called in (CW, August 21).

Three DG intelligent terminals for OEM

THREE Micronova-based intelligent terminals for the OEM market have been launched by Data General in the US while, in the UK, the company plans to give the smallest CS business system its local launch at Compec.

The new terminals are the MPT/80, 83 and 87. They are compatible with the full line of Data General minicomputers. They run under the MP/OS real time operating system and support Pascal, Fortran and assembler. For $4,800 the customer gets the straight video terminal, $6,000 buys the terminal with one 358K-byte mini-floppy drive, and MPT/87 with two mini-floppies costs $7,100. Software is separately charged.

The terminals include 60K-bytes of memory, full keyboard including 10 programmable function keys and screen features include blinking and reverse video.

Data General announced the CS/10 business computer, which is also based on the Micronova, in July.

It supports up to four terminals and up to 50 megabytes on disc. A 60 cps and a 300 lpm printor are offered with it.

Timeplex court threat hangs over Racal-Milgo

THE end, this month, of the exclusive multiplexer marketing agreement between Racal-Milgo and Timeplex has left the prospect of legal action between the two. Timeplex is apparently unhappy with Racal's marketing efforts on its behalf.

Timeplex president Edward Botwinick refused to talk about the future relationship between the two companies last week because he said his company is contemplating litigation against Racal-Milgo.

Last week both companies launched a whole clutch of new data communications products, some in direct competition with each other (see page 15).

Until this month, Racal marketed Timeplex multiplexers in Europe, Africa and the Middle East under an agreement that was exclusive for both parties.

But Racal has now developed its own range of statistical multiplexers (CW, September 4) while Timeplex has set up its own UK subsidiary (CW, March 20) and signed up 12 distributors in the rest of Europe, including ones in West Germany, France, Italy, Denmark and Sweden.

Racal has an agreement to buy spares from Timeplex to support its existing customers and marketing director John Babb said he would like to be able to continue to offer Timeplex products, both for existing customers to expand using compatible equipment and so as to provide a choice, even though the two companies' products are in competition.

Amicable

Timeplex's UK director Harry Thomas said he had hoped to supply Racal, but Racal had not placed any orders with the UK subsidiary since it began trading in April.

His co-director Bryan Gray added that the break with Racal had been amicable, Timeplex had established itself in the UK market without impacting Racal-Milgo's business and the two companies had talked to each other over joint customer queries.

Online front office for hotels

AN ONLINE front office system for hotels designed with modular add-on facilities has been introduced by Hoskyns Computer Systems and Services.

Called Super Tuffy, the system has four main elements: guest accounting, telephone logging, a point-of-sale terminal network and an advance reservation system.

The point-of-sale terminal network module, Terminal Tuffy, allows charges to be entered directly from the restaurant, bars, and other areas, while the telephone logging system, Telephone Tuffy, enables charges for telephone calls to be added to the guests bill without manual intervention.

The guest accounting system, Alpha Tuffy, provides a number of facilities, including a fully automated guest bill with itemised charges, and guest and departure as well as room status lists.

As part of the launch, Hoskyns is running a Super Tuffy Roadshow to demonstrate the system to UK hoteliers, including London, Leeds, Birmingham, Cardiff and Dublin.

Fortran to get recursion — Ansi

IN A major departure from previous practice the next Ansi standard for Fortran will include recursion. A surprisingly unanimous decision at last week's meeting of the Ansi X3J3 committee at Fort Lauderdale, Florida, agreed the change. The decision is in line with a previous one to introduce facilities for dynamic storage.

It is envisaged that any Fortran function or subroutine which would call itself, either directly or indirectly, would have the keyword RECURSIVE included in its header statement, before the word FUNCTION or SUBROUTINE.

As well as making it clear when recursion was being used, this would allow implementers (compiler writers) to compile non-recursive routines more efficiently on machines whose architecture does not easily support recursion.

Another decision which could also affect established Fortran practice was that the use of dependent compilation in some form, such as the specification of argument attributes, would be acceptable in the future Fortran standard if this was needed to provide new functionality.

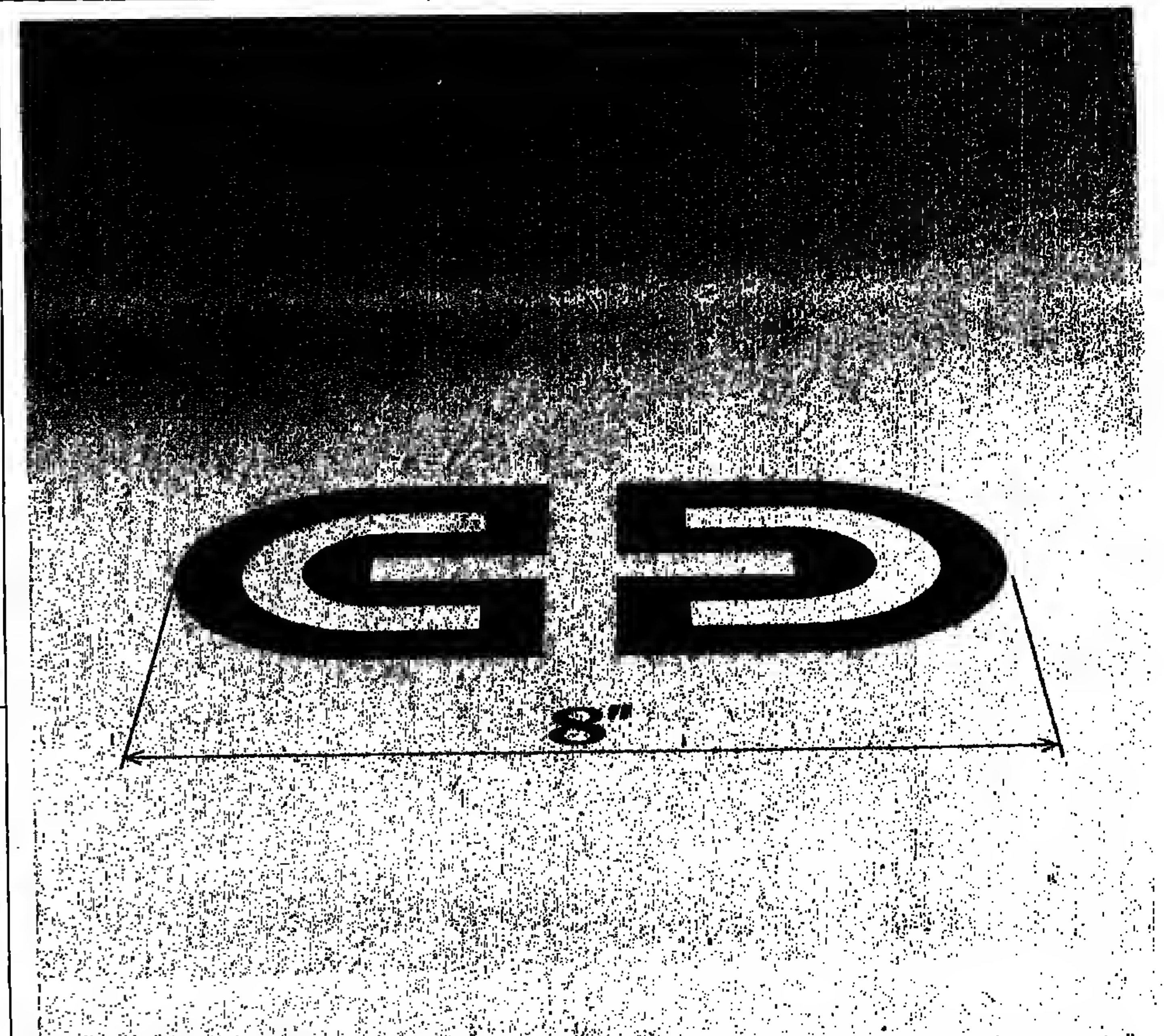
This was agreed in principle by a straw vote of 21 in favour, four against and four abstentions.

No specific proposals which would require such a facility have yet been put forward for formal approval, though some are under discussion.

Other decisions taken at the meeting were to approve the inclusion in the next standard of various intrinsic functions to create, manipulate and investigate arrays; further such functions are under consideration.

These functions, many of which return array-valued results, are intended for an array processing module within the core-plus-modules architecture for the next Fortran standard and are aimed at the efficient use of array processing machines like the Cray 1 and the ICL DAP.

BRAND NEW
VT52-AB
VIDEO TERMINALS
£595 each 1-4 Quantity
£545 each 5-9 Quantity
£495 each 10+ Quantity
per Single order
● PRICES INCLUDE DELIVERY IN U.K.
● PRICES EXCLUDE V.A.T.
● FINITE QUANTITY — first come first served
● OFF THE SHELF DELIVERY
● DIRECT FROM MANUFACTURER
● CHEQUE WITH ORDER
● OR ACCESS/VISA ACCEPTED
Digital Equipment Co. Ltd.
Box 85, Reading, RG1 3EE
Tel: Reading (0734) 25533



When you have a reputation like ours for disk drive technology, it's worth protecting. So when we introduce a new product, we have to make sure that it lives up to expectation.

With the "Lark," we've made doubly sure. Because it's our first move into 8" rigid disk drives.

The result is a new Control Data standard in mini-drives for the computer industry. In terms of performance, reliability and economy.

The Lark (9455 Lark Module Drive) combines 8 megabytes of data storage on a removable cartridge with a further 8 megabytes on a fixed disk. Data transfer rate is 9.67 MHz (1.2 megabytes a second), and the Lark is compatible with the Control Data family of industry standard Storage Module Drives.

It provides on-line, random-access back-up in a unit that can be attached to the same controller as a Storage Module, Mini Module or Cartridge Module Drive. And two units can be installed horizontally, or three vertically, in a standard 19-inch rack.

For complete protection the 8" cartridge is entirely self-contained. When the cartridge is inserted in the drive, the cartridge dust cover opens for spindle and head access, and it closes automatically on removal. A self-contained air circulating system operates within the sealed environment to ensure both drive and data reliability.

Add to those features, Control Data's world-wide experience, service, parts and engineering back-up, plus our new third-party maintenance programme, and you'll realise why for a change thinking small can also mean thinking big.

If you'd like to know more about the Lark, just call Colin Keighley on 01-240 3400 or simply fill in the coupon and send it to him at Control Data Limited, Control Data House, 179/199 Shaftesbury Avenue, London WC2 8AR.

See the 8" Lark at Compec. Upstairs in the Grand Hall Gallery, Stand 9010 Suite 1.

Please send me more information on the Lark 8" disk drive.
Name
Company
Address

CONTROL DATA

هكذا عند الاصل

Downtime

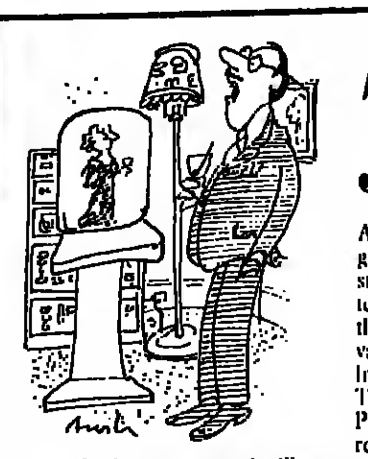
by Chad

Love will sniff at locksmiths

ACCORDING to the managing director of Mastiff Security Systems, future computerised door controls and the like will recognise people by extra-sensory perception. This is an interesting idea. I am trying to imagine what the transducers for ESP will consist of. The only thing is, once you have invented a transducer for ESP, it's no longer extra-sensory, is it?

It would be even neater to invent a computer with clairvoyance. Then it could leave all the doors open until someone came along who was going to do something naughty, and then slam the doors in his face.

Other slightly more feasible means of identification the Mastiff man mentioned were visual recognition and smell. "It's a wise computer that knows its own master." Never mind that the Feelies and the Smellies are supposed to be outstanding amenities in Brave New World. Why spend all that money on chips and circuit boards when a nice homely basset hound will do the trick?



"The zing's gone out of office parties once we decentralised . . ."

● I WAS discussing last week the French and their involvement with word processors and the like, which they call "Bureautique."

A friend of mine finds this inventing of new words especially grating. "What," he asks, "do they call the application of computers to aviation? Aerotique?"

Signs are that the Japanese face change

As the folks at The Times slowly get around to thinking about starting to use their computerised production equipment that has been lying around in varying states of readiness for the last three years, the Daily Telegraph has just installed a Prestel set. Telling me this, a reporter proudly remarked, "This is the first piece of Twentieth Century technology this newspaper has acquired."

I was about to remind him about ballpoint pens, and then I noticed that he was writing with a fountain pen!

American newspapers have of course long ago gone electronic, and the Japanese ones are beginning to switch over now. In the case of the latter, new technology makes all the difference in the world, because they can use keyboards for typesetting instead of those enormous racks of little metal blocks with characters on them.

This point was made by the recent Horizon programme called Goodbye Gutenberg. Because of the difficulty of writing anything in Japan, office procedures there have developed along totally different lines from those in the West. Instead of writing memos and voluminous reports, Japanese managers tend to go and talk to each other. Now with the advent of Japanese language word processors and communications links, all that is due to change drastically.

But, I ask, before we start speaking in our shoes, should we not wonder whether this will in fact benefit the Japanese? Far from making them more efficient, might it not make them less efficient by inflicting them with all the problems we have, namely bureaucracy, red tape and Parkinsonism? Maybe their ruthless efficiency at the moment stems from the fact that they are not buried under mounds of paper!

I know Socrates is supposed to have objected to the invention of writing on the grounds that it would cause the human memory to atrophy. I've never held by that view, but I shall be watching eagerly to see what happens to Japanese productivity as they bring in screens on every desk.

GILB'S MYTHODOLOGY

There is always a simpler way . . .

Tom Gilb is an independent consultant, lecturer and author on computing topics.

THIS is one of the simplification principles from the list of 12 principles I listed in a previous Mythodology (CW, September 11).

You can use this principle if you are a designer, by deciding that you will not give up until you have found at least one of the simpler ways. I often begin along the simplification path by having a gut reaction that "there must be a simpler way". Then, picking up on the article of faith that "there is always a simpler way", I proceed to find one.

This may sound like a childish game. But it works. If you don't even think the thought consciously, that there must be a simpler way, then you are likely to get so wrapped in the complexities of *implementing* your overcomplex solution, that you will never have time to sit back and find the grand simplification.

There will always be a crowd of people around you insisting that there is no simpler way, that it *must* be solved this way:

- because the big boss decreed it;
- because IBM doesn't have an Apple II type system;
- because you can't do it any other way in IMS or Cobol or RPG;
- because it says so in the DP standards;
- because we never did things that way . . . etc. etc.

But there is another way. There are many more ways. And some of them are, my experience dictates, ultimately more acceptable to the powers that ultimately decide these things, than the current proposed solution.

Try again

You may have some difficulty in *finding* the solution. You may have some difficulty in working out the practical details, once the concept is there. You may have some difficulties in convincing your boss, and colleagues of the merits of the new idea (not *your* new idea, "*our* new idea").

You may meet obstacles in accessing the right level of management to discuss the new simpler solution with (don't be afraid to send a memo to the biggest boss). But don't give up! When you fail initially, try again and try for higher quality in communicating the idea. The idea may be great, but we do have a duty to the idea to package it so that the other people out there can also understand that it is such a great idea.

Let me give you an example of this in data processing. A government institution was preparing to take into use a new computer. Its old tape file-oriented system was based on 300,000 lines of Fortran code, made by 100 programmers over a nine-year period.

At a pub one evening in the middle of planning efforts the chief programmer announced casually to me that they intended to re-program the whole lot to Cobol, to online and to database on the new hardware (which was already contracted for). I knew in advance that they only had seven months to go, had not begun the work yet, and had at most three programmers who had any knowledge of Cobol.

"You are joking," was my initial reply. No, he was deadly serious, and they had just started the process of conversion.

"There must be a simpler way," I said to myself. I then listened to the long list of reasons why conversion to Cobol and all that jazz was the only possible solution.

Now, I'm sure that most readers are with me in thinking Fortran to Fortran (both on Control Data computers) seems like the simpler conversion route, whatever the disabilities of Fortran are for commercial record processing. But the arguments were spewed out with overwhelming conviction.

Surprise

In fact they were so convinced that, I discovered by asking, they had not even asked the hardware supplier if there *were* any conversion aids. Two weeks later a telex arrived confirming the (surprise!) imminent announcement of such an aid.

"But," said my chief programmer, "it won't work."

"Why not?" I replied.

"Because one half of all our logic is character-string handling in complex variable length records. Cobol handles this easily, but the conversion from our present four character-per-word to the new 10 character-per-word machine would be an impossible task in Fortran [technical note: just think of all those DO loops geared to four character-per-word and the corresponding *equivalence* statements]. The conversion package does not handle strings at all," he concluded, triumphantly.

The technically competent reader will recognise that there is a simplification here. Four to ten is a simple conversion. The 35 commercial subroutines in Fortran which did all such record handling were rewritten (which was simpler than recoding the 150,000 lines of code they generated).

This simplification was used and succeeded, even though they argued for three months about whether such a simple solution could really work! Readers will not be surprised to learn that the "real reason" for the complex Cobol solution was that these Civil Servants wanted desperately to be able to job hop to the nearest Cobol installation, and Fortran was not in demand elsewhere for administrative data processing.

The simple solution was there, but not many of them were willing to risk the wrath of their peers to make it work. The big boss, however, had a bigger boss (the Minister of Finance) and wanted to get the job done. He understood the simplification, and pushed it through.

Gilb's hypothesis: There is always a way, but most people refuse even to look for it — and when it is found for them, they will spit on it.

● The book, Techniques of program and system maintenance (edited by G. Parikh), reviewed in my column (CW, August 28), is available from GST Computer Systems Ltd, 91 High Street, Longstanton, Cambridge CB4 5BS, tel: (0954) 81991. The UK price is £15, plus £1 post and packing (post free for two or more copies). GST Computer Systems Ltd is authorised European distributor for Ethnotech products.

PRICE CHECK!

SEE IF YOU CAN BEAT US FOR VALUE?

* OFF-THE-SHELF DELIVERY * SERVICE THROUGHOUT THE UK.

digital VT100 VDU's.
LA120, (180 C.P.S. PRINTER TERMINAL)
LA34 (30 C.P.S. PRINTER TERMINAL)
PRICES FROM £595

Hazeltine H1400/1500 RANGE OF VDU's
PRICES FROM £475

TALLY T1612 KSR (180 C.P.S. PRINTER TERMINAL) WITH NUMERIC KEY PAD PRICE £1,512

MANAGEMENT CONTROL SYSTEMS
269-271 Barlow Moor Road, Chorlton-cum-Hardy, Manchester M21 2GJ. Tel: 061-881 0757. Telex: 667161 MCS G.
4th Floor, Bilton House, 54/58 Uxbridge Road, Ealing, London W5 2TJ. Tel: 01-840 3282.

FOCUS

Power goes to the highest bidder

I HEAR from the US that computer hardware is to be sold at a public auction. Whether this suggests a slump in sales through normal channels or a shortage of available gear is unclear — but the event certainly portends interesting developments.

The organisation behind the enterprise, Sotheby's, is probably more noted for handling precious and fine arts, plus much of the British Heritage, than for handling data and computers. The company suggests that, if successful, it intends to run similar auctions on a quarterly basis throughout the US.

A quick check reveals that Sotheby's currently operates a series of Burroughs computers in London. Whether these particular machines are earmarked for early disposal to the highest bidder hasn't as yet been revealed. Possibly Sotheby's have it in mind to dispense with its total DP system, in which case members of the DP team could well find themselves coming under the hammer as part of lot B3700. Description tags would no doubt state: "Multipurpose, decorative, early 1970s vintage. Despite considerable wear and tear, are good for further service".

Enthusiasm

The auction organisers report that their initial approach has met with much enthusiasm with over 1,200 US installations expressing interest. The highlight of the auction will be several large IBM mainframes as well as associated IBM plug compatible equipment, peripherals and other non-IBM hardware. It is to be hoped that equipment manuals will be included as well as contact names of the local independent maintenance organisations.

Proof that the equipment was in good working order would seem a major problem overlooked by the organisers. Test drives in the auction presumably not being feasible, labels suggesting one careful owner plus certificates of maintenance and some will be the least any prospective purchaser will require before parting with his dollars or American Express card.

Bargain

Very possibly, equipment from the academic, government, banking environment will command premium prices [illegible] general under-use [illegible] care and attention. At the same time, the configuration [illegible] hassle in the local [illegible] software house could be [illegible].

Secondhand, or used equipment, is generally thought to be [illegible] limited to the [illegible]. Although an [illegible] and accepted part of [illegible], the novice user is usually [illegible] clear. New equipment [illegible] comfort and [illegible] probably solid price. If [illegible] does not have a solid budget [illegible] does have the required [illegible] and installation background, buying secondhand makes [illegible] practical sense.

The alternative marketing [illegible] as the used equipment [illegible] to be called — can [illegible] highly visible enhancement [illegible]. Upgrading, [illegible] from one series to another [illegible] to obtain all coverage [illegible] performance can be [illegible] adding add-on core [illegible] the peripherals from [illegible] systems.

Meanwhile the auction [illegible] have opened up [illegible] possibilities [illegible] UK DPMs [illegible] in order to offer half of [illegible] and personnel [illegible] market, a little [illegible] able [illegible] printer [illegible] overdue, but [illegible] should first be made to [illegible] what pays for [illegible] delivery.

Maybe the auction [illegible] tended to include [illegible] and organisations [illegible] a bidder could [illegible] make an offer for the [illegible] Centre and British [illegible]

TEN YEARS AGO

From Computer Weekly of October 22, 1970

THE second report from the Computer Board warned that ICL's very large computers, that were then under development, could be too late to meet universities' DP needs for the 1970s . . . A prestige NCR order from British Home Stores came adrift when the 64K Century machine was returned to the maker . . . What was claimed to be the first small computer with a virtual memory was launched by Systems Engineering Labs of Florida . . . President Nicolae Ceausescu of Romania called for the early establishment of regional computer centres in his country . . . Lakes Fishery Lab at Ann Arbor, Michigan used an IBM 1130 to help study changes in the fish population of the lakes, particularly the effects of pollution on them . . . In a bid to get better reliability, speed, power and size advantages over ferrite core memories, Honeywell was developing magnetically plated mini-wire about two-thousandths of an inch in diameter . . . On show for the first time in the West was the East German Daro Cellatron C8205 minicomputer which was being exhibited at Sicob 70 . . . The National Comput-

Scheme to train disabled 'futile'

A GOVERNMENT-funded scheme to train disabled people as computer programmers is beginning to look like an exercise in futility because of the enormous difficulty that has been encountered in trying to find jobs for those who have successfully completed the training.

Ron Dent, the college principal who is running the course, has hit out at the Manpower Services Commission who, he said, had "claimed to have done their homework" but had not done it.

Dent is principal of Queen Elizabeth College, Leatherhead; this project is his first encounter with computers. He is complaining bitterly that the MSC told him there were 25,000 vacancies for computer staff, but failed to tell him that nearly all these were for people with experience.

Of the first 14 graduates of the QEC course, only three have managed to obtain jobs, and one of these had the job before coming to the college.

The scheme provides TOPS training in Cobol using MSC funding and teachers provided by ICL (CW, November 15 1979). The problems of the disabled trainees reflect the difficulty that all experienced TOPS graduates countrywide have been having in finding jobs to start out in the industry.

Only one of the first 14 disabled trainees had found a job as a programmer, after 130 applications. Another has become a trainee systems analyst, and another has gone to Belfast College of Technology to study computer science. One other has gone to the Spastics Society self-help scheme at Milton Keynes. Apart from one who returned to an existing employer, the others are all unemployed.

Julia Schofield of the BCS, who is leading a campaign to get employers to take on more disabled DP staff, commented that a work experience scheme was sorely needed. Only a handful of firms, among them BP, IBM, Hill Samuel, and Plessey, were represented at a meeting at the BCS to encourage further efforts.

IBM has, however, seconded a full-time staff member, Ronald Ellis, to head a new charitable agency called Opportunities for the Disabled, which is aimed at convincing firms to overcome the "psychological barriers" to taking on disabled staff. BP has also appointed a full-time personnel officer for the disabled.

Electronic office for spastics plan

THE Spastics Society project in Milton Keynes is aimed at setting up a fully-fledged electronic office, in which 12 disabled graduates will be able to pursue technical and business careers. Eventually the purpose-built premises, which are to be operational next spring, could be the administrative centre for over 100 disabled graduates working from home.

Peter Deakin, manager of the project, feels there is no existing electronic office system that is suitable now, but has been talking to two suppliers, Ventek (which sells the Datapoint system) and Prime. He does not want to develop a special purpose system because that would make it less easy to install elsewhere. Rather he would like to see each disabled person with his own portable box, acting as a keyboard, which would plug into any standard terminal.

Three fields of work are currently planned for Milton Keynes; one is on fluid mechanics in conjunction with Cranfield Institute of Technology (CW, November 15 1979); another is for freelance programming; the third is for entrepreneurs.

Currently Apple personal computers are being tested with disabled people to convince potential donors to the project of the benefits of this sort of technology.

Telecom to market database aid

BRITISH Telecom has bought the worldwide marketing rights to the Deutsche Bundespost's software for accessing third party databases via Prestel. The software was commissioned by Aregon from Systems Designers Ltd to enable the Bundespost to run its Prestel-based Bildschirmtext service without threatening the German publishing industry.

British Telecom believes the ability to access existing databases will enhance the attractiveness of Prestel to foreign PTTs.

It also plans to run a market trial of the system in the UK next year. Prestel director Richard Hooper said this week that two or three existing information providers had agreed to put their money where their mouths were to see whether there really was a market for this kind of service, as had often been suggested.

Packet switching would almost certainly be used for the third party database links, Hooper added.

Marketing of Prestel abroad is to be tackled by flexible federations of commercial interests, organised as a project leader and collaborating parties, so that a complete package could be offered including sets, adapters and chips as well as the computers and software.

Local manufacture could be aided with know-how as necessary and any part of the project from pilot trial to full service could be run on behalf of the PTT.

The revamped agreements for Aregon and British Telecom both to sell in the US and for Aregon to provide support for British Telecom's sales elsewhere (CW, September 4) were the first of a series of similar agreements to be made in the future with the UK teletext industry, GEC, other private system suppliers and component makers.

Govt buys Intercomm

A UK government department has purchased Intercomm, the teleprocessing monitor acquired from Informatics by another large US firm, Software Design Associates.

Although the choice of Intercomm suggests a large IBM mainframe outfit, further details about how and where the monitor is to be used are not available. The government buying agency, the Central Computers and Telecommunications Agency, is unlikely to reveal who else was considered in its competitive evaluation of TP monitors.

"Even we weren't given the reasons for the choice," said an SDA spokesman. "It was SDA's first experience of dealing with the UK government and I must say we consider them to be very fair and straightforward in dealing with vendors."

Intercomm is to be one of several teleprocessing applications sharing screen and telex facilities. SDA is supplying the training and installation of the monitor, which it bought from Informatics last year along with its worldwide customer base, as part of a push into the software products market.

Third Action Plan

EXPENDITURE of £9.6 million on development of Euronet and promotion of the information services offered on it is being proposed as a "Third Action Plan" by the European Commission, for approval by the Council of Ministers. Among the work proposed is help with language problems by development of multilingual terminological tools, and further efforts on standardisation of user interfaces.

Motorola's Japanese link

A JOINT venture has been agreed in principle between Motorola and Aizu-Toko, a subsidiary of the Japanese electronic parts company Toko. Motorola is to buy a 50 per cent interest in Aizu-Toko, but it will not be transferring any of its semiconductor technology over to the Japanese concern.

However, the agreement does involve Aizu-Toko's Japanese semiconductor sales subsidiary distributing Motorola-developed products. Motorola will also be introducing some of its MOS products into the subsidiary's product line. Aizu-Toko is to keep its name in the venture and its management.

Although the Japanese semiconductor market is estimated to be more than $2.6 billion this year, US manufacturers are only expected to get around 15 per cent. Meanwhile, Japanese companies have gained about 40 per cent share of the 16K RAM market.

Firm set up to sell teaching kit

IN a bid to speed the training of keyboard operators and typists, a new firm has been floated to design and market a teaching package which is based on Mostek 6502 8-bit chips.

The firm is Richmond Data Services of Forest Green, Dorking and its spokeswoman Sue Petritz said the system, called Keyskill, consists of a stand alone desktop unit comprising a Japanese VDU, 8K processor, a keyboard that can be tailored to the user's own kit and a cassette player with program tapes. Alternatively a pre-programmed ROM chip can be added to the processor.

Petritz said the system was designed to encourage touch typing from the start, as the keys are blanked off and there are special exercises for keypads.

In operation the system displays the blank keyboard with the home keys marked. If a mistake is made, the keyboard is "frozen" and the word "Error" flashed on the screen.

"Trainee performance is continuously monitored and a record stored for use by the training supervisor at the completion of a session," said Petritz.

A trainee cannot proceed to the next exercise until the last one has been accurately completed. Petritz said: "Keyskills is designed to teach both novice and experienced operators."

The system costs £1,500 and can also be hired. It can be adapted for schools, colleges and all branches of industry and commerce.

Interactive APL service

THE APL products house APL*Plus has introduced an interactive service for APL users in the UK. Known as APL*Plus VM, the service is based on IBM's VM/370 and is aimed at the experienced user.

The range of software products and languages besides APL*Plus now includes Fortran, Cobol, PL/1, Basic, Assembler, MPSX, SCSS and Easytrieve. It also provides application packages for financial planning, manufacturing and materials management and database management.

Timeplex multiplexers.

Now you can order direct from the source.

For more than ten years Timeplex multiplexers have been improving the efficiency and economy of data communications networks in the United Kingdom and around the world. Today, the Timeplex commitment to the data communications industry is stronger than ever.

Introducing in the U.K., Timeplex Limited — a wholly-owned subsidiary of Timeplex, Inc. USA.

Now you can come directly to Timeplex to help you create the most flexible, trouble-free network possible. Timeplex Limited is the one and only source in the U.K. exclusively dedicated to sales, service and support of Timeplex product systems.

Come to Timeplex Limited as your source for the SERIES II MICROPLEXER* family of statistical multiplexers, data concentrators manufactured by Timeplex. Plus, a full range of modems and accessories to meet your system needs.

Remember, Timeplex multiplexing systems are known throughout the world for advanced design, reliability and cost effective performance. And wherever you are in the United Kingdom, the source of these products is now as close as your telephone.

Simply dial Leeds (0532) 735141. Or if you'd like more information about Timeplex products, fill out the coupon below.

Visit Timeplex Ltd. at COMPEC, Stand 3232, 4231, Grand Hall

Timeplex

Timeplex Limited, Timeplex House, North Parkway, Leeds LS14 6PX Tel: Leeds (0532) 735141 Telex 557476

* Patents Pending

To: Timeplex Limited
Timeplex House / North Parkway
Leeds LS14 6PX

☐ Please send me more information on the Timeplex product line.

☐ Please have a Timeplex Ltd. representative call me.

Name
Title Company
Address
Telephone Number

PAGE SIX for programmers and analysts

It's investment now or fewer jobs, says Tim

THE message that ASTMS union leader Tim Webb has just sent out to his members is more than just another educated essay on the computer industry. For the first time, computer professionals are being told to look to their laurels.

For the past 10 years, they have been chased after, poached and been made to think, by the media as much as by rapid change within their own industry, that the work they were doing was the work of the future, that the only way was up and, while industry after industry was falling into trouble, nothing could halt the acceleration of an industry on which all aspects of future society would be based.

Tim has told these people, and hopefully the government, that this is not necessarily so.

The message behind his pamphlet "Computer Professionals: Image and Reality" is that although there will no doubt be computers everywhere in the future, there is no reason to think that these will be UK machines.

Quite the opposite.

All the signs point to the fact that unless more money is ploughed into the UK DP industry now, there will be no such future for UK DP staff. The Japanese and the Americans have already got a firm foothold in the UK, and we have only 5% of the world market.

Deficit

The UK started off as an innovator in the field of computing, but the industry now contributes a net deficit to the UK economy, amounting to £200 million in 1979.

There will not be sufficient openings in foreign manufacturing and sales offices in the UK to accommodate the vast number of computer staff now working in this country.

And yet the cry is "more staff, more training" – what is going to become of these people if the industry, as Tim predicts "crumbles beneath our feet?"

Cocooned

Tim's warning and his recommendations are one matter. The other issue that his pamphlet raises is how have computer staff come to be cocooned in this "unique" state of self-importance?

The answer lies in the obvious statement that the computer industry is itself unique. It is relatively young, and people – individuals as well as companies – have been drawn to it for this very reason. Once it was established, it seemed to be the only industry which was assured of a prosperous future.

The computer industry also differs from others because it employs a great number of professionals who are oblivious of, or not interested in, their industry.

Many of them are interested in writing programs, or designing systems and, apart from the people at the top, they never associate themselves with the industry, only with the job.

This arises because the computer industry covers not only those involved with making and selling computers, but also those who actually use them. It is like saying that the motor car industry extends to chauffeurs and coach drivers. And those who work for British Leyland or British Steel are acutely aware of the industry they are working for, and painfully conscious of the fact that any fluctuations in the market will directly affect them.

Computer staff suffer from no such instability.

Tim is saying that it is time they were. For their own good.

His message can be roughly interpreted as: if you've got a job now in DP, you'll probably be OK; but don't encourage your children to get involved with it as well.

Who exactly can solve this almost inevitable landslide of the UK computer industry? Tim looks to the government and to the unions to play their part.

The government, he says, must be prepared to make confident investments in the business and also be more liberal with grants for areas where manufacturing branches of industry can be successfully housed.

The present government has a poor record for this sort of aid and it is highly unlikely that it is going to change its ways with just the prompting of one white collar official.

The Microelectronics Industry Support Programme has been reduced to £55 million. This is the same amount now allocated to the Microprocessor Applications Programme (MAP). ICL has only received £40 million in direct financial assistance.

The most obvious pointer towards Government awareness of the situation is the delay over Inmos.

"The delay in providing Inmos with the agreed public funding does not make for confidence in the government's ability to comprehend the available opportunities", writes Webb.

Although stating that there are no instant solutions for all the problems that arise in a "fast-moving profession", Webb lists in his general conclusions that the government should require foreign multinationals to comply with the provisions of the OECD guidelines on the provision of trading information, particularly transfer pricing and net import and export figures.

Education, too, for young and old, is something much overlooked in this country compared to our foreign counterparts. Both in schools and in government retraining schemes such as TOPS and Threshold, more money and skills should be made available.

And the onus does not just lie on the government's shoulders. Industry, too, should look further than just solving its immediate staff shortages and invest more in in-house training schemes to compensate for the ever increasing number of redundant skills.

This point is one which concerns Webb particularly. It is now a fact that people are being made redundant at an early age. We are quite accustomed to the assumption that new technology is putting people out of work.

The notion that people are being made redundant who actually work with that technology, because their skills are obsolete, is an alarming one.

The cry is "more staff, more training – what is going to become of these people if the industry crumbles beneath our feet?" asks ASTMS National Officer Tim Webb (right).

Puzzler

THIS week's problem involves a sort of mathematical "gulf", to be played over a course of nine holes. Tee-to-pin distances are respectively 325, 275, 350, 225, 400, 425, 150, 300 and 250 metres.

You are asked to find two shot lengths which would enable a golfer to get through the course in only 26 strokes – always assuming that he was sufficiently skilful to hit exactly which of the two lengths was required on each stroke.

All shots must be played in a straight line towards the hole, or beyond it so as to play back in a straight line. For example, if the two shot lengths selected were 85 and 100, then the first hole could be negotiated using five 85 metre shots forward plus one 100 metre shot back.

See page 37 for the two optimum shot lengths and the 26-stroke minimum round.

● My omission of just two little words in the October 2 problem brought a virtual maelstrom of phone calls and letters swirling around my ears. The first sentence should have read, "There is only one solution to the equation $x^2 + y^2 = z^2$, given the fact that all three integers involved are different and prime."

This would make the answer $2^2 + 11^2 = 5^3$ unique. Yet another big slice of humble pie for Puzzler, who hereby proffers abject apologies.

Why computer staff need a union now

IN his report, Webb notes that computer professionals are "probably the single most mobile occupational group in the UK, with an estimated turnover of 20% per annum."

They are a young, highly-paid group. But, says Tim: "High mobility, whilst superficially attractive and occasionally desirable, can disadvantage the employee in that employment legislation, designed to protect the individual at the place of work from discrimination or dismissal, does have stipulated minimum periods of service in order to qualify for such protection."

To help those who are susceptible to this kind of danger, the unions too must fight. Salaries should be properly negotiated and evaluated and should reward expertise, responsibility and qualifications. Provisions should be made for sabbatical leave and early retirement and job security agreements should be negotiated.

All these measures can only come about, however, when everyone who has anything at all to do with the computer industry begins to realise the danger that the UK is currently facing. The opportunities are as enormous as ever. Why should we be the last to grasp them?

Page Six invites your opinions on this sensitive subject. Are you aware of the delicate position you are in?

Webb . . . the delay in providing Inmos with the public funding does not make for confidence in the government's ability to comprehend the available opportunities.

Women have nearly made it

THE ASTMS pamphlet "Computer Professionals, Image and Reality" besides being a way of frightening the computing population to death, provides some rather bright ties.

Like all good unions, it takes the situation of women as being as a case in point.

"There is little incentive," it says, "for encouraging the industry to recruit female graduates with aptitude who have been channelled by the higher education into obtaining arts degrees than the traditional male engineering and science options.

"In the related area of communications, official [illegible] Department of Employment figures showed that only 1.06% of professionally qualified staff were women," it continued.

Success

Come on, ASTMS! Apart from the "related area of telecommunications" which may well employ a mere handful of women, DP is one field where many women have succeeded. The industry is crying out just about the same female graduates were finding their own in DP in general.

Now, walk into any computer firm, software house or installation and you will see women filling many different roles, from operators to software engineers, programmers and managers.

And as for the "arts" barrier, surely this is something which has always applied to men and women alike. But that it hinders success in computing is no longer true, except in specialised areas of engineering. Most users actually specify that the type of degree is irrelevant, and state that a non-science degree is often preferable for some types of jobs.

So although we applaud ASTMS for championing the cause, the battle is nearly won.

NOVEMBER 20 AND 21, 1980
INTERCONTINENTAL HOTEL – PARIS
COMPUTER CRIME: SECURITY TECHNIQUES
INTERNATIONAL SEMINAR SPONSORED BY
INSIG – INSTITUT DE RECHERCHE INTERBANCAIRE
Presented by:
● TOUCHE ROSS & CO.—FRANCE AND USA
● CII HONEYWELL BULL—FRANCE
● UNION BANK OF FINLAND—FINLAND
● CENTRE INFORMATIQUE GENERAL—BELGIUM
INFORMATION AND REGISTRATION:
OROS—OFFICE DE RECHERCHE D'ORGANISATION ET DE SECURITE
42, Bd Pasteur—75015 PARIS—Tel. 287.38.00

DIGITAL • ANDERSON JACOBSON • TRANSDATA • A M JACQUARD • MELLORDATA • NEWBURY LABORATORIES • TEXAS
HEWLETT PACKARD
KSR's
30 cps from £46 per month
120 cps from £87 per month
Portable from £63 per month
Daisy Wheel from £104 per month
Monitors and VDU's
Standard (Teletype compatible) from £33 per month
APL from £47 per month
VT52 and other options from £47 per month
SHORT TERM RENTALS ALSO AVAILABLE
ASR's
Integral terminals from £87 per month
Separate P T Cassette units from £43 per month
Separate Diskette units from £60 per month
Contact Mike Brooke or Philip Ely. Tel: Byfleet 53151 & 49658
MBS Rentals
Specialists in the renting of terminals
MBS Rentals, Aldersh House, Madeira Road, West Byfleet, Surrey
• TREND • QUME • DIABLO • LEAR SIEGLER • TALLY • PERICOM • TECHTRAN

SOFTWARE FILE by Claire Gooding

For those who do not want VSE

"THE release of the new Nixdorf 8890 is going to be a slow, controlled release in Europe," said Steve Broniarski of Gerrard Data Systems, the company which has just tied up with Nixdorf's NCSC to market a whole range of software products (CW, September 18).

"Our aim is to get people who don't want to go over to VSE. Nixdorf bought out EDOS from CSC to make it easy for people to migrate from DOS/VSE to another OS, since IBM won't support 'foreign bodies'. It allows clients to change OS without any change in standard VS job control," he continued.

He let slip an interesting sidelight on German logic. The new Nixdorf machine, based on Elbit's Anet (CW, September 25) has been titled the 8890 to avoid the teutonic tongue-twister 8880, acht-und-achtzig achtzig, which was the next number in line.

Gerrard Data Systems will be concentrating on the NCSC range which aims to provide a "complete alternative" to IBM software.

The range includes Dex, an online data entry system, Econ, for extended console support, an extended procedure language, EPL, and facilities for tape and disc management. There is also a database management system and a batch/online facility for program development and development and maintenance.

The online data entry system is said to improve operator control of CICS, allowing direct partitions, screens and messages. Screens can be shared by other applications and the system handles VM-type commands: one user-oriented feature is that it scrolls downwards rather than upwards.

● A large gap in the range has just been filled by the choice of Altergo's Shadow II TP monitor for the 8890, under the name TCP.

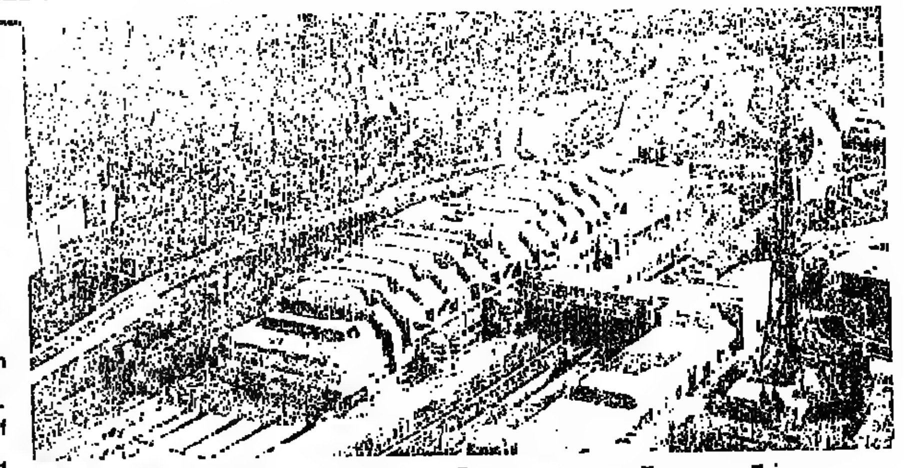
Host to the IKD

THE IKD in Berlin (right) was the event chosen by Nixdorf to launch its new remote maintenance facility for use with the Nixdorf 8870 operating system.

The presence of the company at the software mart was an indication of its keenness to be seen as a purveyor of software as well as hardware.

●

Also on show for the same machine were the utilities Checklist Input Customer-Oriented Output, Chico, and the Implementation Support System, ISUS.



Mastering info technology

BERLIN'S International Congress Centre was the host for this year's IKD, the biennial congress for specialists in Data Processing. The 4th IKD was held on the theme of "Mastering Information Technology – Challenge of the Eighties".

The well-equipped ICC was chosen as the venue so that participants from Eastern block countries, including East Germany, could attend. Over 700 people from over 20 countries took part.

Papers in English, French and German were given by experts in various areas, particularly the world of work and how it is affected by advances in technology.

Chairman Eckhard Fuchs encouraged the DP world to "abandon its reticence" about the major social advantages changes brought about by computers.

"We must aim for the demystification of the computer. We must get our message across to the public to reassure them that there are advantages to the development of information technology," he said.

Among the global issues dealt with by the conference were the development of computer know-how in the Third World, and the role of women in DP.

Mainframe-type query language for micro users

A QUERY language and report writer has just been released by Micro Data Base Systems, the US firm which supplies a database running under CP/M operating system for Z80, 6502, 8080, 8086 and other machines.

The query language, MDBS.QRS, follows the trend set by mainframes towards ad hoc queries phrased in non-procedural English phrases. It works with the hierarchical version, HDBS, as well as the MDBS.

The language follows a similar format to its mainframe "big brothers". A one-off query to list all females and their phone numbers under 35 in department 43 would be phrased as follows:

```
LIST NAME, PHONE FOR SEX =
FEMALE, DEPT = 43 AND AGE LT
35 THRU DEPTS, EMPLOYEES.
```

Although not entirely free format, the design of the query language requires very few tricks to be learnt. There are also facilities to customise the language for non-technical users, and questions can be filed for further use or routed to a printer.

Machine language

The query facility, like the MDBS system itself, is written in machine language which speeds up the process of retrieving data.

The range of the language is surprisingly wide, allowing complex expressions in the FOR clause, and able to cope with arithmetic expressions, each involving one or more data type.

Another announcement from MDBS at the Chicago Software Info, where MDBS.QRS was on show, was the forthcoming MBDS.VAC facility which extends the Data Definition Language to give the database designer greater control over the mapping of logical records.

Thumbs-down for market

THE software mart which formed part of the IKD in Berlin was given the thumbs-down by most of its participants. Only a few stands – Siemens, IBM, Philips and Nixdorf, with a couple of software houses – were to be found in a large echoing hall. More significantly the exhibition was off the beaten track, housed in the bridge section of the ICC Congress Hall, and visitors were scarce.

IBM's stall was unstaffed, displaying a gripping range of brochures. Siemens did better, with a real time model demonstrating remote control by robotics.

No one seemed impressed by the turnout and organisation, but the idea won general approval. It is hoped that the next IKD, to be housed in the ICC from now on, will give the show more limelight.

UK launch

AN Integrated Business System, IBS, has been launched into the UK market by Prime. The move is part of the company's strategy to provide "total systems" for medium to large users.

Rewritten in Cobol

THE accounting package Sapphire from Pentagram (Software File, August 21) has been rewritten in Cobol for mainframe users. The new version will be available in December at the same price as the previous RPG II package, £4,500.

BCS survey results

OVER 50% of installations replying to the BCS questionnaire on using Cobol identified structured programming as one of the main problem areas.

Only 9% felt that Cobol completely satisfied their programming needs; all the others resorted to pre-processors to provide missing features and the use of installation standards, in an attempt to overcome Cobol's failings.

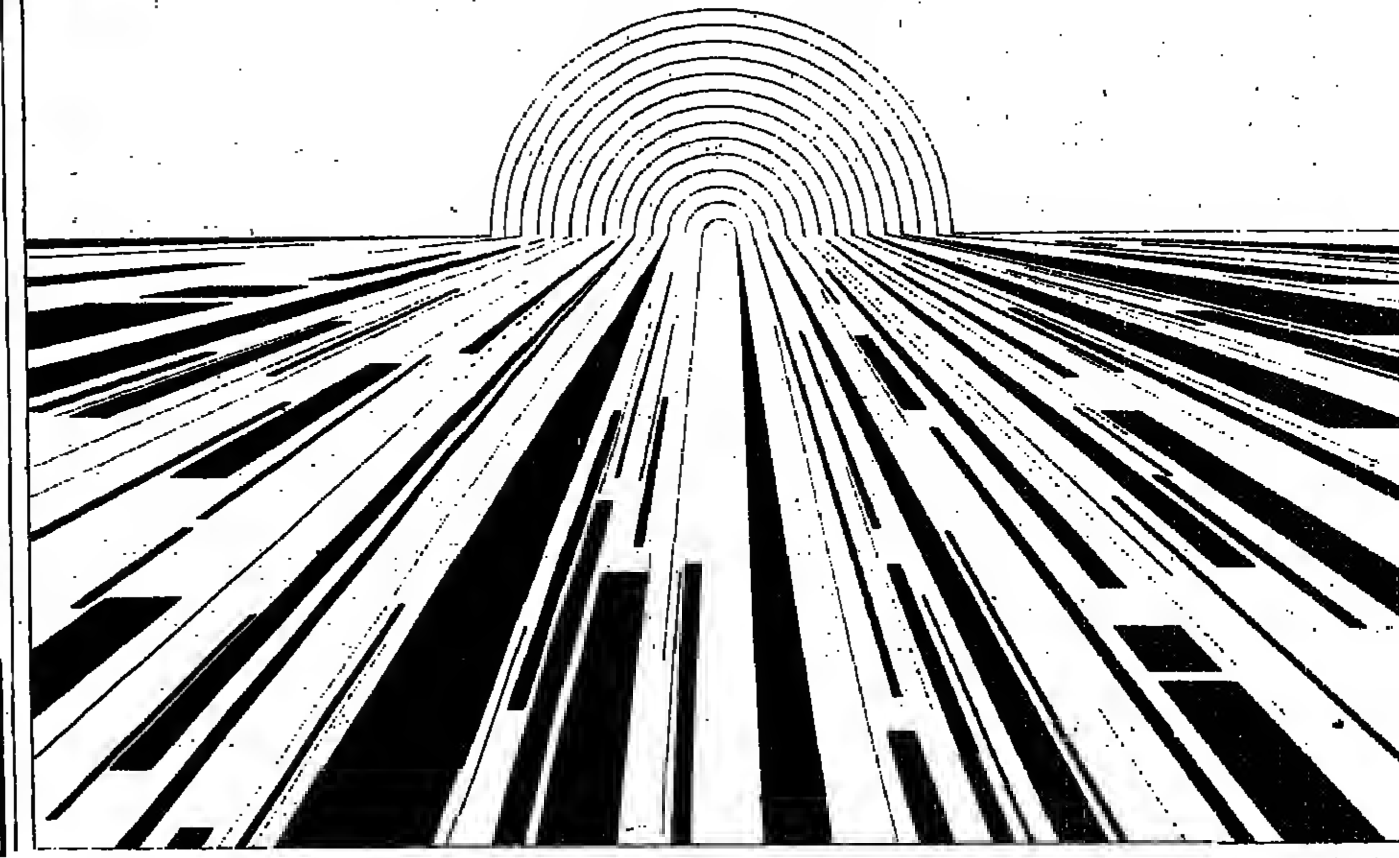
Other problem areas included the lack of a database facility, and most controversial, the report writer feature. Other facilities found wanting were data validation feature, decision table processing and an initialisation feature for the Procedure Division. Several comments were also made on poor telecommunications.

Real time system

A REAL time production system for medium to large factories has been adopted by Cable and Wireless for Data General kit. It has already found a customer in Ansafone, which has dropped its IBM bureau service as a result.

The production system Impcon comes from Computer Systems Development and costs £15,000. Its systems are sold on a turnkey basis, mostly in the manufacturing field, and are also available on Systime equipment.

RELATIONAL SYSTEMS
Your complex on-line applications can be implemented by us on PRIME, VAX or under VM/CMS faster than you would think possible and at lower cost. Our successful relational database processor/query language, INFO, is included on special terms.
Ask about our application packages. Amongst them is a sophisticated open-item, multi-currency sales ledger written in INFO.
Doric Computer Systems
25 WOODFORD ROAD WATFORD WD1 1PB
TELEPHONE: WATFORD (0923) 48788-9



OP SPOT

by Paul Fisher

Laser printers can help ops cut out boring work

IF Caxton were alive today and if he'd retained his revolutionary turn of mind he might well have asked why anybody would give IBM a quarter of a million pounds for a great white wardrobe of a printer.

The IBM salesman would be quick to explain that the 3800 laser printer is designed to keep pace with the 370.

Caxton would probably scratch his bald pate and wonder why in a world where information is processed in nanoseconds, there was still a demand for his kind of laborious technique where words were put onto paper so people can carry them around, store them and even, sometimes, read them.

IBM could then fill Caxton's ear with a few details from the 3800 spec sheet. It prints a page at a time, nearly three of them every second. In the space of a minute it churns out 20,400 lines of print and consumes over 150 feet of paper.

Our salesman could sniff at the boring old impact method and launch into a screed about laser beam character generation and electrophotographic printing.

If Caxton were still asking what's new, IBM could turn the machine on, for it is impressive to watch in action. Should he remain unmoved, his businessman's instincts would be satisfied by the fact that IBM has sold 730 of the things in the US and a further 50 in the UK.

One of IBM's recent 3800 customers is supermarket chain Key Markets. Delivery was taken at the computer centre in Hainault, Essex on September 3 and the engineers had it running within a week. Operations supervisor Steve Potter was one who welcomed its arrival.

"From an operational side it is quite safe. I think we'll find more benefits as time goes on." He's impressed by the machine's ability to cope with its own donkey work for it cuts out the time-consuming aspects of bursting and trimming.

From the company's point of view the 3800 is being used in support of Key Markets' transition to the point of sale equipment which will eventually be installed in all its 112 stores. The first store to use PoS was at Spalding in October 1979: the next to make the switch is at Penge.

Key Markets is going to the trouble and expense of installing PoS systems for very good reasons.

Analysis

Firstly it slims down stock control work by providing a swift analysis of sales information.

Thus the vital balance between beans and tomatoes can be established, as can their position in the store and the optimum length of shelf a particular product needs to occupy. PoS advances the slightly sinister science of demographic marketing.

Secondly staffing levels can be reduced. In Spalding for instance Key Markets was able to reduce the number of checkout points from 18 to 14. Key Markets were quick to point out that this hasn't meant any redundancies because staff who leave are simply not replaced.

"I keep thinking I'm in Spalding", said an executive looking round his Romford store. That's one of the benefits of standardisation. Shoppers moved at a brisk pace past a rank of IBM laser scanners. Each shopper was given a ticket from the till detailing items purchased, prices paid and the method of payment.

None of the goods had price tags but carried inscrutable bar codes instead. Since the introduction of laser scan checkouts there has been a legal requirement for shelf edge stickers describing products on display and the cost.

One of the tasks assigned to the 3800 is the production of these sticky labels. It can print 9,000 in six minutes and, inflation being what it is, 1,000 changes have to be made every week.

IBM had claimed that users putting sticky labels through the 3800 would end up with a sticky argument in the machine's innards. The bureau which used to handle Key Markets' laser printing work had refused to contemplate the printing of the shelf edge stickers.

As well as being slow by comparison with the speed of processing, printing has always thrown up fundamental nuts and bolts problems for the engineer to cope with. The US National Printing Converters Inc, which provided Key Markets with the labels, spent nearly £100,000 on research.

Happiness is a pile of sticky labels popping out the end of a laser printer. Shift leader Kevin Glover is holding the labels and behind him is ops supervisor Steve Potter.

Tortuous

Paper passing through the 3800 follows a path as tortuous as a Formula 1 racetrack. Labels forced through 180° turns tended to separate from the backing paper so the adhesive had to be strong, but not so strong that labels were welded on so they couldn't be peeled off.

Having sorted this out the designers had to find a glue which wouldn't react to the 350° temperature which is required to fix the print.

Forty different adhesives were sampled before the right oil based substance was concocted. Paper and perforations had to withstand the acceleration of the 3800 cranking itself up to top speed.

Bob Buckley, president of National Printing converters, says "These sticky labels will be beneficial to three parties. Myself, the end user and IBM."

He needs IBM's good housekeeping seal of approval although the multi-national always makes its claims on the side of safety. He has already got several large orders in the US and reckons that 20% of the 3800 users are potential customers.

Buckley must be quick on his feet in order to recoup the investment he's made. Harry Baker, Key Markets' Data Centre Manager, can't afford to be sluggish either.

He has been with the company for nearly two years prior to which he was ops manager at the Co-op. He is one of the prime movers to Key Markets' switch to PoS and the 3800 is very much his baby.

He says: "Apart from the sticky labels, we're using the 3800 for price catalogues, merchandising aids, payroll and bought ledger. We're leasing it for £6,000 a month and need a higher volume than with the old 1403 impact printer."

Therefore he's scouting around for customers for a bureau service to take a tape and laser print it. The charge will be £14 per thousand feet of paper. He's also got plans to extend Key Markets' role into that of a bureau.

What has all this meant to the operators?

By all accounts Baker is a hard task master given to wielding new brooms. On arriving at Key Markets he put a stop to clashes between ops and programmers and changed from a two shift to a three shift system.

Then, should the proposed bureau service prove successful, there will be more ops jobs. The next change is to be an upgrade from the present 370/135 to a 4 megabyte 4300. This will entail going from DOS Power VS to DOS/VSE with the possibility of VM later on.

Getting the Abbey habit

MANY an operator has ... jobs out of pure boredom ... management at the ... National Building Society ... lation in North London ... upon a scheme which ... holding the interest of ... operators and is also benefi... society.

Nearly two years ago ... Univac Asct (Author Sys... Education and Training) ... as part of an operator trai... ject. At first there was ... disappointment because the ... ing lessons had been ... other users and only ... to those users.

However the site deci... stick with Asct and to ... own lessons. Asct is ... learning text consisting ... English words that direct... puter

Clean split

It uses a series of IF ... each of which leads to ... permutations. The author ... what eventually appears ... screen without having ... how it gets there. For ... National this means that ... been able to concentrate ... content of the lessons.

Abbey National's site has ... split between systems ... tions and all work on the ... sons has been done ... operators. At the moment ... are eight of them involved ... lessons voluntarily.

Andrew Robinson, ... operator-writers says: "... the operators far more ... programming technique ... bonus for management ... has a bunch of happy ... vated ops on its hands ... have dropped the habit ... their bags and moving ... jobs.

Trevor Jamieson, ... ministration controller ... ter operations, places ... phasis on training. The ... National has a Univac ... supporting a real time ... tions network and ... "Downtime caused by ... trained operators hits ..."

Completed packages ... lows: general concepts ... ters, pieces of a compute... use Asct, how to ... role of an operator, ... tion to console key-ins, ... file loading procedures, ... duction to JCL, T, ... key-ins, course scheduling ... and an introduction to ...

Narrowing gap between sta...

THE most elementary lesson, General concepts of computers, starts off in a jaunty fashion: "Hello, Andy." If your name is not Andy, this can be taken care of.

"Most people have some sort of mental image of what a computer is and what it does, but quite a lot of these images are fuzzy. This lesson tries to clarify the concepts," the computer continues.

Basic concepts are outlined followed by a series of questions. If you tell it that a program is hardware it explains: "A program is not a hardware device just as a recipe is not a kitchen utensil."

For breaking in an uninitiated trainee, the lessons are excellent because they demand a use of the terminals. The more sophisticated lessons are also proving useful.

Malc Jackson, another operator-author and operations supervisor who has been involved ... from the beginning says: "We find that it is one way of narrowing the gap between senior operators and the ordinary operators."

The problem in developing computer aided learning packages is to strike a balance between a good interactive lesson and unnecessary complexity. Early on in the development work, the services of Quentin Whitlock of Sheffield Polytechnic were called for.

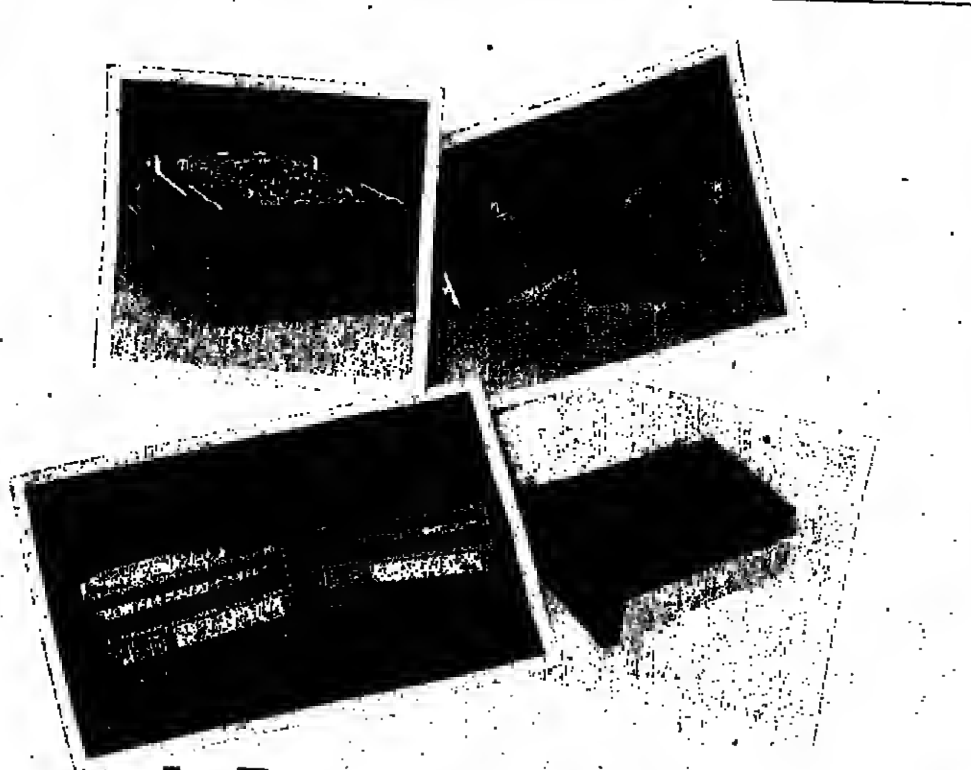
He gave two one week courses on "the design of training courses in computer based form". He made the operators consider which topics were really suitable for a CAL approach and warned that writing lessons always takes a long time.

According to Malc, they can now prepare a lesson in about four months which isn't bad considering most of the work is done in free time.

... taken to prepare a good ... not wasted. The lesson ... again and again and ... student's time at the ... might be worth 10 hours ... in a classroom.

Asct is leased by ... £231 a month and ... comprehensive document... is aimed at 1100 ... Univac is anxious to ...

It has become quite ... the US and its UK ... Eagle, Provident, ... ton, The Trustee ... and Teeside Polytechnic ... Trans Australia ... Lufthansa have ... to train reservation... other terminal users ... mich of developing ... favour these ... 1100s and its ... continue to be for ... with a large ...



At Pertec it's not just a range of disk drives

It's the range.
The range built on years of experience in the computer industry. And every drive within it offers fast access, simplicity and a level of reliability that has long been the envy of our competitors.
Select your next disk drive, from the range designed to meet the most demanding systems applications, because Pertec performance is world renowned.

D3000 – top or front load, single platter cartridge drive up to 24 Megabytes.
D8000 – eight inch Winchester drive, 20 Megabytes in floppy size package.
FD200 – mini floppy, 250K bytes, single head. FD250 – mini floppy, 500K bytes, double head.
FD650 – standard floppy, 1.5 Megabyte double head.

PERTEC

Pertec International, 10 Portman Road, Reading, Berkshire. Tel: (0) 734 582115/595536. Telex: 847101.
Eichenstrasse 59, 6230 Frankfurt/Main 83, West Germany. Tel: (0) 611 395387 or 395587. Telex: 4189264.

MICRO NEWS

IBM uses gate array technology in VLSI

GATE array technology has captured the interest of IBM in one of its advanced technology projects in VLSI. It has implemented the logic part of the System 370 model 138 computer with a 5,000 circuit bipolar gate array chip.

IBM claims that the Schottky-clamped TTL chip, if used in a system, should be capable of a sustained performance rating of 2,000 instructions per second when executing IBM 370 instructions.

The chip is specified by IBM as having a power dissipation of 2.3W and an actual measured speed of 2.2 nanoseconds for a machine cycle time of 100 nanoseconds. It contains 7,640 internal cells, 64% of which are occupied by circuits.

Claud Davis, manager for advanced system design and evaluation, told the first International Conference on Circuits and Computers in New York, where the announcement was made, that the chip was not developed with a specific IBM system in mind. However, the information gained for the project could be used in the development of future products.

Experiment

At the conference, Dr Michael Feuer, manager for VLSI physical design, noted that IBM originally took on the 370/138 gate array as an experiment, to discover whether the company's techniques and the gate array approach would remain compatible in the VLSI region, and whether an advanced microprocessor could be built in the same way.

One of the reasons given for the development and fabrication of the 370/138 gate array was that IBM was trying to determine what it should be doing in VLSI.

Other technical papers concerning gate arrays at the conference were presented by Amdahl, Nippon Electric, Bell Telephone, RCA and Ferranti's Interdesign operation.

Experience

The semiconductor process used in the development of the IBM 370/138 array device was the same as the one used for bipolar random logic chips contained in the IBM 4300 series of computers. It features a two micron thick epitaxial layer, recessed oxide isolation and three levels of metal.

IBM's experience in the design of gate arrays goes back 10 years to the layout of 130-circuit bipolar chips. Since then the company has used 700-circuit logic chips in the System 38 and 4300 Series and a 1,500-circuit bipolar gate array in microcontroller applications.

The System 370 project involved the IBM automated design systems and it took only nine months for the sequence of logic entry, auto-placement, auto-wire routing and test pattern generation and verification. ROM, RAM and registers needed for a complete 370 were not included on the array device.

The conference brought to light the fact that several semiconductor companies are dedicating resources to the development of gate arrays, and most computer manufacturers are following the developments closely.

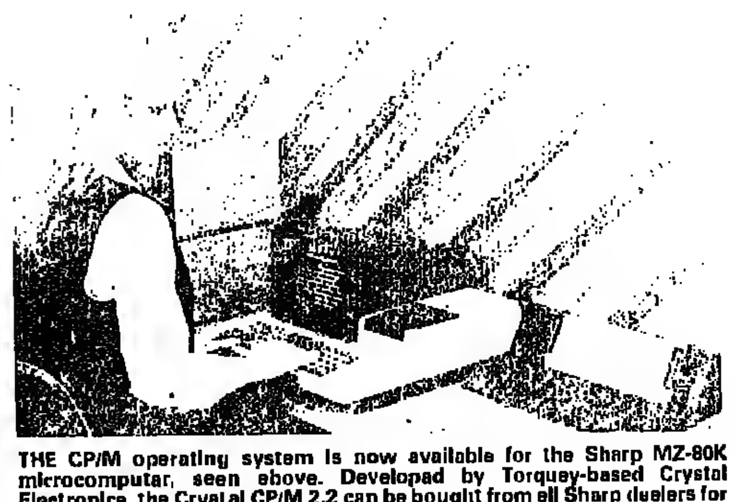
Amdahl is developing a system which uses array chips of several hundred circuits. It has been using an ECL gate array of 100-gate complexity in its large computers since 1975. The company considers the gate array approach to be the best overall architecture to meet objectives of short design time, low design cost, low power, high gate density and very high speed, when compared with random gate logic, microprocessors, bit slices and the ROM/PLA approach.

As integration levels get higher, however, wiring channels will take up more of the total chip area, affecting both yield and performance. Improvements will have to be in test strategies, packaging and heat dissipation.

Fairchild is working on a 2,000-circuit gate array for introduction late next year. The company foresees a dramatic increase in the use of gate arrays within the next three years. Those on the market will be based on sub-nanosecond ECL, Schottky and low-power Schottky TTL, integrated injection logic and CMOS.

Dr Tom Longo, chief technical officer for Fairchild, is of the opinion that anyone serving the computer industry must offer gate arrays. He considers that the current simple gate arrays will be followed by arrays which include registers and PLAs.

Both Longo and Leslie Vadasz, senior vice-president of Intel, are of the opinion that gate array architecture complements the microprocessor in system level products.



THE CP/M operating system is now available for the Sharp MZ-80K microcomputer, seen above. Developed by Torquay-based Crystal Electronics, the Crystal CP/M 2.2 can be bought from all Sharp dealers for around £200, excluding VAT.

Faster switch method

AN experimental transistor micro structure that will switch in 0.8 nanoseconds has been developed by IBM. It uses a merged transistor logic (MTL) technology which is IBM's version of integrated injection logic (I^2L), and could be used in the future development of VLSI circuits.

IBM's method consists of predicting a pattern of low resistance which could allow current circulation without an increase in electrical charge, and thus not limit the speed of the circuit.

An auto-alignment process of the new structure enables dimensions of the circuit to be reduced and this results in an increase in speed.

UK software feature of LSI follow-up

"BUY British because it's better" was the motto of Woking-based LSI Computers at the launch of its UK designed and built small business system. System M-Two is claimed to be better than Japanese and US competition because it uses software specifically written for UK business methods.

LSI Computers, part of the CPU Computer Group, a Shugart distributor, has developed the System M-Two 8085-based small business system as a follow-up to the System M-One, which was launched four years ago. Around 600 M-Ones have been shipped in the UK since then.

Variety

The System M-Two comprises 64K of RAM expandable to 128K, and can have either Winchester fixed disc back-up or double density floppy disc, providing 10 to 20 Mbytes or 1.2 Mbytes of storage respectively. It runs the CP/M operating system, enabling a variety of high-level languages to be implemented.

Each system can run up to four VDUs, providing they are less than 1,000 feet away from the processor, and one or two printers, at 60 or 180 characters per second. LSI Computers actually provides its own Pentland Model VI VDU with the systems. A floppy disc based system with one VDU and a matrix printer is available for £7,900, while the Winchester-based system with four VDUs and the floppy disc costs less than £14,000.

LSI Computers stresses that numbers of systems are complete and available now, with a delivery time of around four weeks.

The company hopes to achieve a production rate of 20 per month until Christmas, and will eventually be exporting up to 50% of its total production.

Growth trends study

DEMAND for semiconductors throughout the world is expected to reach \$47 billion by 1985, according to a study on microelectronics growth trends by Mackintosh Consultants. In 1979 the figure was \$14 billion, implying an average annual growth of 22%.

Worldwide consumption of integrated circuits is expected to undergo an average annual growth rate of 27%, from \$9 billion in 1979 to \$38 billion in 1985. However, the total growth rate is expected to drop to 17% in 1981 and increase to 23% for the following years.

According to the report, US companies will keep their 63% share of total semiconductor production, but lose some of their share of integrated circuit production, from 71% in 1979 to 67% in 1985.

Japanese companies are expected to keep their share, 20%, of total worldwide semiconductor production and increase their share of integrated circuit production from 17% in 1979 to 21% in 1985.

Drop expected

In Europe shares of both these markets are expected to drop from 12% in 1979 to 5% in 1985 for semiconductors, and from 6% to 4% for integrated circuits. Market share of discrete device production will increase from 21% to 24%, says Mackintosh.

The report, entitled World Semiconductor Industry Outlook, is available from Mackintosh Publications, Luton, for \$400.

AVAILABLE AT LAST

Ex stock VT100s plus full range of options

Special price £999

80/132 Column VDU with detachable keyboard, smooth scrolling, split-screen, and video input/output.

RAIR

To RAIR Limited 30-32 Neal Street, London WC2H 9PS Telephone 01-836 4663 Telex 298452
Please send me full information on
Name Position
Company
Address
Telephone number Extension

PEOPLE and EVENTS

Plessey director is named IEE president

THE INSTITUTION of Electrical Engineers has named its president and chairmen for 1980/81.

President is Air Marshal Sir Herbert Durkin, who has been a member of the IEE council since 1974. He was elected vice-president in 1977 and deputy president in 1978.

Sir Herbert read mathematics at Cambridge, before being commissioned into the technical branch of the RAF in 1941. He served in India, Iraq and Germany before being appointed director of engineering (policy) at the Ministry of Defence on his promotion to Air Commodore in 1967. In 1973 he was appointed director general of engineering and supply management at the MoD, and in 1976 became controller of engineering and supply (RAF) in the rank of Air Marshal. He was awarded the KBE in the 1976 birthday honours list, and retired from the RAF in 1978.

Sir Herbert is a director of Plessey Telecotomunications and Office Systems.

Deputy presidents of the IEE are Sir Francis Tombs of the Electricity Council and J. Banks of BICC. Chairman of the computing and Control Division is R.W. Suttoo of GEC Hirst Research Centre, Chairman of the Electronics Division is F.H. Steele of Sony Broadcast and chairman of the Science, Education and Technology Division is R.C. Hills of the IBA.

Management competition

ENTRIES are now being accepted for the 1981 National Management Game, sponsored by the Financial Times, the Institute of Chartered Accountants in England and Wales and ICL, in association with the Institute of Directors and the Confederation of British Industry.

The game puts teams of competitors into a boardroom situation where they work together to make decisions within a time limit. The first prize is £2,000.

The entry fee is £65 + VAT, and closing date for entry is November 7. For further information write to the Administrator, National Management Game, ICL, Beaumont, Old Windsor, Windsor, Berkshire, SL4 2JB.

Kathy Martin has joined Marcol Computer Services os personnel manager. She was previously with Data Logic and is a qualified associate of the Institute of Personnel Management.

Peter Warn has been appointed general marketing and sales manager for Transtel Communications. He joins from Pye-TMC.

Elliot Wassarman has been appointed vice-president, marketing, for North Star Computers Inc. His previous experience includes positions as director of international operations at the Monroe division of Litton Industries and director of international market planning and development for Wang Laboratories.

Visiting prof

PROFESSOR Reginald Wood of the University of Alberta, Edmonton, Canada, bos taken up a sabbatical appointment with the Computer Aided Design Centre in Cambridge as a visiting research fellow.

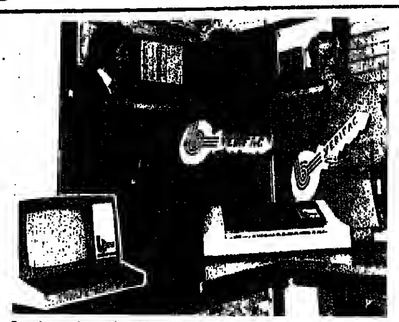
Prof Wood has been a member of the Department of Chemical Engineering at Edmonton since 1966, and spent a previous sabbatical leave, between 1972 and 1973, with the Control Engineering Group at the Warren Spring Laboratory in Stevenage.

During his twelve-month stay Prof Wood will be working with the Cadcentre's Process Industries Group, where he will be contributing to the development of new programs for the simulation of chemical processes.

W. G. Holbert has left ICL to become managing director of CSC Holdings subsidiary, Microcosmic Systems.

John Hardy has joined Computer Machinery Company as territory manager for Middlesex and West London. He was previously with Harris.

Alistair Crawford has been appointed product promotions specialist at Redifon Computers. He was previously territory manager for the South East branch of the company.



Our picture shows Grey King of B&IMS handing over the keys of a Vortilue computer to veterinary outgoona Tony Pevoto and Lewis Jassop. King developed the oyatom to help with the running of veterinary practices, although it con be applied to ony organisation needing to keep detailed records of clients. The computer is Z80-based and uses the standard CPM system.

Two awards for micro firm

TWO Queen's Awards have been presented to member companies of the Micro Consultants Group. Recipients of this year's awards were Peter Michael, managing director of Micro Consultants, and Richard Taylor, managing director of Quantel.

The award, for Technological Achievement, went to Micro Consultants for the development of Intellect, an electronic video image processing, generation and enhancement system. The system can capture an image from a live television signal, radar, infra-red or other raster format signal, and process it immediately.

Micro Consultants already has a Queen's Award, presented in 1975, for advances in the field of analogue to digital conversion.

The Queen's Award for Export Achievement went to Quantel for the sales of its framestore television broadcasting systems, using state-of-the-art digital computer technology. About 90% of the company's sales come from export orders.

Jennifer Allison has joined Monotype Communications as demonstrator for the London showrooms. She was formerly sales administrator with Data Logic.

John Mathews, for the past two years general manager of Wilkes Business Forms, has been appointed to the main board of the holding company, James Wilkes Ltd.

Wilson Haddow is customer accounts supervisor at CMG Computer Management Group (Scotland). He has worked in the computer field for six years, having held posts with the British Steel Corp and Weir Group management Systems.

Philip Cole has joined Prime Computers as sales executive. He was formerly with Computer Services Corp. Another sales executive, Steve Childlow has been recruited by Prime. Childlow joins from ICL. Prime has also created two new senior management appointments. Rex Blagg has been promoted to manager, office systems, for Northern Europe, and Claud Vaz has become field engineering manager for the Northern European region.

Robert Buxton has joined MAI UK as sales executive, based in Bristol. He joins the company from Data Rural where he was area manager for the Midlands.

It wasn't fixed – honestly!

COMPUTER Weekly won the first Computer Summer League Knock-Out Cup's Pegasus Venture, and it wasn't a fix, honestly. Neither was it an easy victory. Trouble was the name of the game in the first half. Within five minutes of the start of the game, played at Clapton FC grounds in Clapton, East London, a Venture player collided with his own goalkeeper and had to leave the field nursing a broken arm.

If you're thinking that things could only have gone better from then, you're wrong. Soccer is notorious for its gusts ups, but on this occasion [illegible] was in the clear. The [illegible] proved too much for two [illegible] players, and they were sent [illegible] fighting. Weakened though [illegible] turned, the teams fought [illegible] business and by half time Computer Weekly had a 2-0 lead.

The teams won their places [illegible] final by eliminating (1-3) [illegible] the computer industry. The [illegible] tendance was an impressive [illegible] the good waters were Phillip Ribbi[illegible] Steve Bays who scored two and [illegible] Chris Prier who scored one.

VP for Motorola

GARY TUCKER has become corporate vice-president and general manager of Motorola Semiconductor Group's International Division.

He has been with the company for 18 years, serving most recently as corporate vice-president and general manager for the Group's Discrete Electronics Components and Materials Organisation based in Phoenix, Arizona.

Tucker joined Motorola after graduating from Arizona State University, where he gained a Bachelor of Science degree in electrical engineering. In his new post as general manager, he will be responsible for all the company's marketing activities outside the US.

Walter Davis has been appointed director of international marketing at Hunter Rance Corp's Information Systems Division in Dorchester, Connecticut. He was formerly with Brokerage Systems.

Bob Laughland has been appointed export marketing manager for [illegible] Dimmer Europa. He has been with the company for 24 years, most recently general manager/director of [illegible] Cutler-Hammer, in Singapore.

Vydec, an affiliate of Exxon Information Systems, has appointed Barry Ross as general manager Europe. He was national sales manager for Vydec Inc in the US, prior to his new appointment.

Eddie Syms, chairman of [illegible] Segrat, has been elected chairman of the Electrical Installation Equipment Manufacturers Association (EIEMA).

Kieran Kelly has joined Microsystem Services as manager of the newly formed Tut System Division and a director of the company. He was formerly with Lobbie.

Sue Thacher has been appointed export manager for the [illegible] branch of Redifon Computers since the company in 1978.

Liveware File

by Dr

DIARY

OCTOBER 27

Open meeting. 'Technology for people working in viewdata, Prestel or teletext. National Union of Journalists. Sir Christopher Wren pub, Paternoster Square, London EC4. 6.30.

Seminar. Informatics Financial applications products. Informatics. Manchester. Tel: (01-831) 6715.

OCTOBER 28

Meeting. Information technology in the UK in the light of the ACARD report. Speaker: Reay Atkinson, Under Secretary of Information Technology Division of DoI. British chapter of ACM. BCS headquarters, 13 Mansfield Street, London W1. 6.30.

OCTOBER 28, 30

Meeting. IBM CUA GBG symposium. Theatre Royal and Viking Hotel, York.

OCTOBER 30

Meeting. Computer aided manufacture: a reality. BCS. Hatfield Polytechnic, West Hertfordshire. 7.45.

NOVEMBER 3

Meeting. Use of computers in broadcasting. BCS. Norwich City College, Ipswich Road, Norwich.

NOVEMBER 4

Meeting. Microcomputers. Kent branch BCS. Kings Head Hotel, High Street, Rochester. 7.30.

COMPEC 80 will take place from November 4-8 at Olympia, London. The exhibition is organised by IPC Exhibitions and sponsored by Computer Weekly, Data Processing, Systems International and Practical Computing magazines. Practical Computing will also sponsor Microsystems 81. Compec 80 will display computers, peripherals and systems, and include for the first time an IBM UK stand. Among IBM's exhibits will be the 3101 display terminal.

Further information about Compec 80 and Microsystems 81 can be obtained from Chris Hipwell. Tel: (01) 251 6894.

Twelve fascinating reasons to visit the Canadian stand.

COMPEC'80

Twelve outstanding and innovative companies will be participating in the Canadian Government stand at the Compec'80 exhibition. We're very excited about the new computers, new terminals and new concepts we've got to show, so drop by and share in the enthusiasm. If that enthusiasm leads to an interest to purchase, you'll be pleased to know we have offices and agents right here in Europe to serve you. They'll tell you our field tested equipment and systems are completely plug compatible and delivery is as simple as a six hour air flight. See you at the show!

CANADA.
WHERE TECHNOLOGY HAS BECOME A NATURAL RESOURCE.

Canada

ATTENTION DEC SYSTIME USERS

Brand new 3 yr guaranteed
Memorex front loading
12 sector cartridges
£30 each, any quantity (ex VAT)

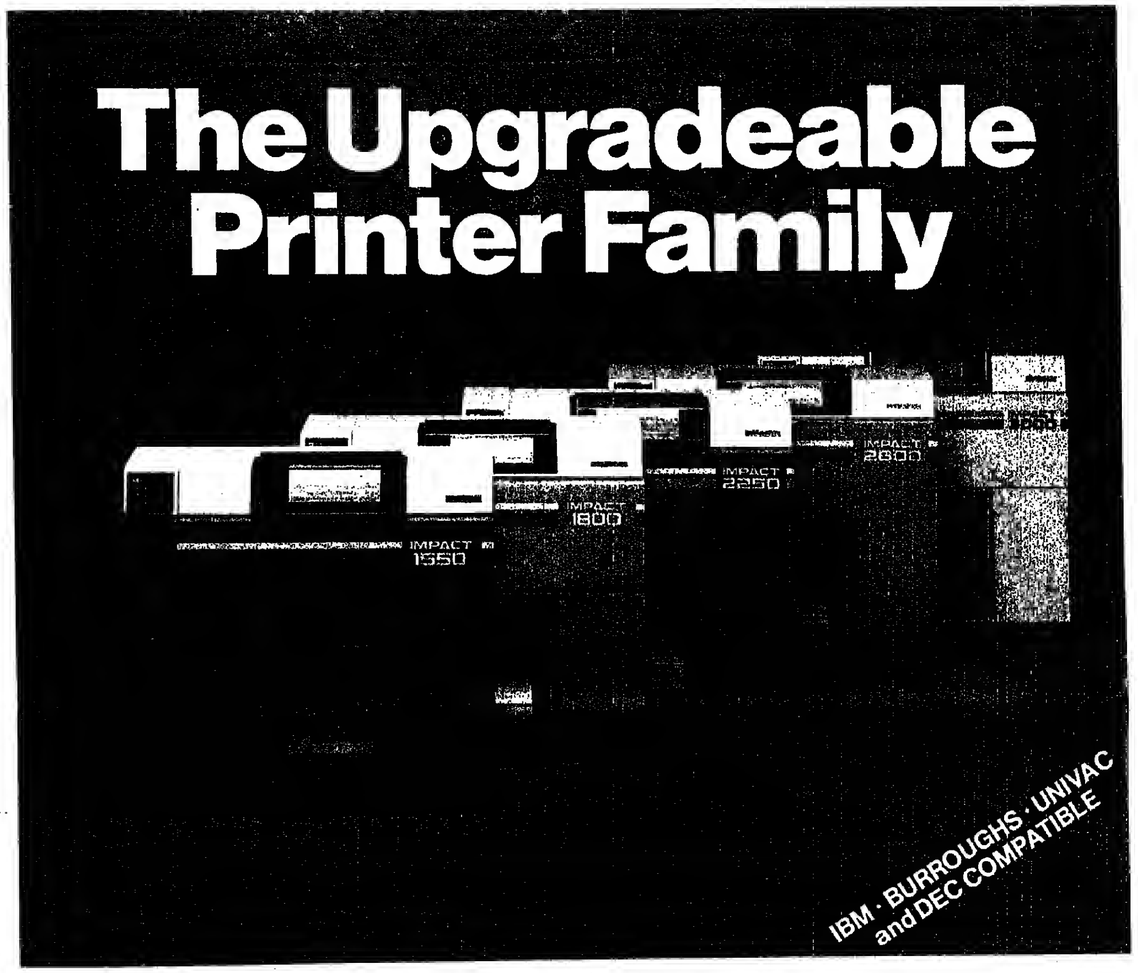
Also
Memorex digital cassettes
ANSI-ECMA, BOT-EOT
17" marker
£1.90 each, any quantity (ex VAT)

Dealer enquiries welcome.

WORTH TALKING ABOUT TO DRG

DRG Systems Supplies
Lynx Crescent, Winterstoke Road,
Weston-super-Mare, Avon. Tel: 0934-416392

The Upgradeable Printer Family



In 24 months Documation Ltd has installed 130 high performance Impact Printers in 85 locations throughout England – our customers are household names in Finance, Insurance, Banking, DP Bureaux, Public Utilities, Local Government, Transport, Retail Trades, Oil Industry and Manufacturing (aircraft, cars, tractors, lorries, glass, chemicals etc).
Our customers chose Documation because we offer:–

SPECIFIC BENEFITS:
* More performance for less cost
* Speed flexibility – 1000†, 1200†, 1400†; 1550, 1800, 2250, 2600, 3000 (48ch. set)
* Upgradeability
* High Quality Print – OCR at 1800 LPM
* Space saving up to 40 per cent
(† IBM Compatible only)
* Delivery 30-60 days

Backed by Documation's first class customer engineering

COMPATIBILITY
* IBM 1403, 3211, 3203/5
* Univac 0770
* Burroughs 9243, 9246, 9247, 9249
* Data Products 2550–2470
* Off Line Tape to Print for IBM Spool Tapes

CONTACT: LONDON: Rod Saar, General Manager, or Peter Winder, (01-898 1821)
COVENTRY: Mike Milner (0203 27758)
MANCHESTER: Harry Nixon (061-832 6570)

SEE US AT COMPEC STAND 5156–6155

DOCUMATION

Doug Moore, Computer Editor of The Australian, rounds up IFIP

We must consult shop floor, says Governor

"UNDERLYING much contemporary writing on computer technology is a stress on the importance of consultation with those affected, particularly in the workplace," the Governor-general of Australia, Sir Zelman Cowen, told delegates when he opened the Eighth IFIP World Computer Congress at Melbourne.

Indicating a problem common to many countries, he warned that Australia was becoming totally dependent on imports for the supply of its information technology.

This raised the question of policy, on which, as Governor-general, he did not wish to speak.

"I point only to the problems which this generates for a society dependent in many vital and sensitive areas on operating computers," Sir Zelman said.

"What if sources of supply are threatened in an international crisis?" he asked.

Vulnerable

He mentioned a Swedish government report which examined aspects of society's vulnerability.

Capture the computer, says the Swedish report, and you capture the society which depends on them.

Societies were also vulnerable to acts of terrorism against computers and to the risk of disasters and accidents that could dislocate sensitive computers, Sir Zelman pointed out.

"As society becomes increasingly dependent on computers these concerns assume increasing importance," he said.

He also referred to the threats to individual privacy posed by computer databanks.

Problem

Quoting Mr Justice Kirby of the Australian Law Reform Commission, Sir Zelman said modern privacy was the business of asserting and upholding the individual's rights in respect of personal data about himself.

"Privacy invasion today is a problem of the database not the keyhole," he said.

IFIP MELBOURNE

The world computer congress was an important event, he told delegates.

"If some of your discussion dwells on matters of high technicality, the holding of the congress helps to focus attention on more general issues relating to the impact of computer technology on our society and its economy."

He also quoted Ashley Goldsworthy, chairman of the congress organising committee, who has pointed out that computer and communication technologies are pushing Man at a pace with which he can barely keep up.

"The most important issues facing technologists today are those concerned with human and social values rather than technical problems," Goldsworthy said.

Distrust

Goldsworthy believes that one of the fundamental problems is the fear and distrust in the minds of the community brought about basically by a lack of understanding of technology.

Sir Zelman said the range of computer functions in the public service and administration of a modern state was very great.

"Once established in this way, computer systems are effectively irreversible. The impact on employment and on the character of employment is very important. We all know areas in which the proposal to introduce computer technology has produced fierce disputes: the printing industry is one example."

Competitive

Also at the opening was Ted Wastie, president of the Australian computer society, who said countries like Australia must computerise their manufacturing industries in order to stay competitive.

But Wastie stressed, it must be realised that computing is a service industry. "Computers must be introduced at a rate which the general public finds acceptable," he said.

30 chps APL terminal

THE APL character set has been added to the £699 AJ880 30 chps impact matrix printer announced earlier this year by Anderson Jacobson. With APL the printer costs £899, or £49 a month rental, and is claimed to be the only APL printer for under £1,000.

The AJ880 has a seven-wire print head and print spacing is user selectable from 10 to 16.5 characters per inch and from two to 12 lines per inch. It has a 700-character buffer and can communicate at up to 9,600 bps.

Trainees' four point scheme

NADOW founder Sheila Blackmore gave details of the practical training in basic office skills to IFIP. She said students with a DP aptitude went on to the computer training scheme.

The standard IBM programming aptitude test was used and the pass mark was constantly reviewed to ensure that trainees achieved the same level as required by users.

The computer course was divided into four segments, she said:

First was an introduction to computer fundamentals where trainees were introduced to computer concepts using a combination of courses including self-study and audio visual techniques as well as visits to computer sites.

Second was an introduction to microprocessors and computer languages, where extensive use was made of an Apple II micro.

Third, a segment that covers programming languages and provides training in Cobol and Basic. Facilities for running test programs include an IBM 3275 Model 2 video terminal display unit linked to an IBM 3031 for Cobol and an IBM 370 for training in Basic.

Fourth was on the job training, and, Blackmore said, invaluable help had been given in this area by supporters of the scheme.

There were 70 trainees a year now, she said.

Bid to get more jobs for disabled in Australia

IN a bid to get more disabled people jobs in Australia, the National Association for Training the Disabled in Office Work (NADOW) has developed a scheme that concentrates on skills in computer operations, programming and data entry, IFIP was told.

In a paper, "A computer training scheme for the disabled," prepared for the IFIP congress in Melbourne, Sheila Blackmore, NADOW founder, describes the NADOW computer training scheme.

She hoped that similar schemes could be set up in other countries to train the disabled in computer skills, but said her association was concerned with people who had no mental problem.

Challenge

As such their real challenge was just like anyone else's. Thus they did not want to sit at home doing nothing when they could pursue a worthwhile, interesting and challenging career. They did not want to live on government pensions and they do want to enjoy some of the better things in life that money can provide, Blackmore added.

Studies had shown that in Australia over one million people suffer from chronic limiting illnesses, injuries and impairments.

NADOW is a voluntary association formed in 1968 by interested business people who recognised the need to provide an assessment and on-the-job training facility in which physically handicapped people could gain experience of office skills.

Now, 15 years later, over ... disabled people have benefited from NADOW training programmes.

Background

It was against the NADOW office training background that the computer training scheme was started in 1973.

"Irrespective of what ... disabled people are ideally suited for training in some branch of ... processing, it is mandatory that they undergo a 13 week course ... our commercial computer ..." Blackmore said.

She told delegates that it was vital that, as computer professionals, they understood, supported and if possible helped the ... of handicapped people in their own countries.

"We should all remember that we have thousands of vacant computer positions for which there are no qualified staff. Yet highly trained and totally qualified handicapped people we have ... immediate and ideal solution to ... people shortage.

"Of the high proportion that completed the course, 65% ... placed in the office and computer fields. Many of the people who ... been trained would otherwise be in receipt of pensions or ... assistance and a burden to the community," she concluded.

Hartley leads local hardware export drive with its 3900 series

PROMINENT at IFIP in Melbourne was the stand of Brisbane-based Hartley Computer Applications, which introduced its Australian manufactured 3900 hardware series (CW, October 9).

Hartley is now expected to be the first Australian hardware manufacturer to export complete systems in significant quantities. Formerly, it added its software to US hardware from DEC, Wang and Data General.

Its Hapas software for professional accountants and Practics software for the medical profession will now be offered with its own hardware. But initially its Sheila Small Business System will still be based on Data General hardware.

The three 3900 models make extensive use of Intel 8086 16-bit microprocessors. With inbuilt 200 megabyte discs from Storage Technology, the largest model was said to have over 10 times the capacity and four times the speed of other systems in the $A40,000 (£20,000) price range.

It is also said to be the first computer product to provide DMA (Direct Memory Access) facilities on all input/output channels.

Hartley has installed 200 systems in the British Isles, including 40 in Eire. It is to launch the 3900 in the UK early next year.

It will also launch Sheila in the UK in 1981 but will not say whether this will be a Data General or 3900 based version.

Over half Hartley's orders come from outside Australia and worldwide it has installed 1,500 systems. Its turnover this year will be about $A20 million (£10 million).

Largest

The IFIP exhibition was the largest computer show ever held in the southern hemisphere. Over $A1,000 million worth of computers were on show and some of the 170 stands cost $A100,000 to construct.

Over 1,600 people registered for the congress and, with on-site registrations, about 1,800 were expected.

With the emphasis on practical computer applications and ... issues as well as technical ... the congress aimed for the widest possible audience.

One paper that attracted ... interest here was "Computer: gift of fire" by Professor Ca... Gotlieb of Toronto University's department of computer science. He said the effect of micro... on employment was much more serious problem than their effect on privacy.

Threat

Also, the use of computers in decision making could lead to ... systems that were too rigid, ... especially in government ... systems that failed to meet ... needs, he added.

And many countries saw growing computer imports as a threat to their balance of payments and technical sovereignty. "We have reached the stage where we must make judgments on how we ... computers, on whether to ... their application in some areas and, perhaps sometimes, whether to use them at all," Gotlieb ...

The dissemination of technology must be controlled in such a way that society did not have mass unemployment and job dislocation, he concluded.

Insight into SBA

DATABASE sessions at IFIP in Tokyo included a paper by IBM computer scientist Peter de Jong on the experimental System for Business Automation, SBA, which allows the end user as well as the programmer to directly describe applications.

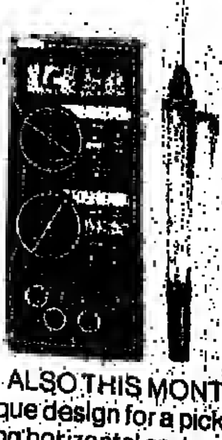
De Jong, from IBM's Yorktown Heights lab in New York State, explained how SBA contained a unified language which replaced the various languages ... time normally needed to implement an application. It replaces the command, programming, database, screen manager and communications languages.

"The end user deals with two-dimensional objects like tables ... and charts that he is familiar with when he performs a task manually."

The IBM relational database language, Query By Example, is ... subcomponent of SBA.

2 offers in 1 issue!

The November Wireless World will feature both these sensational special offers—saving between them more than £20!



Keithley 130 DIGITAL MULTIMETER FOR £73.60

Complete with leads. Price including VAT, postage and packing.

SRB MINIATURE SOLDERING IRON FOR £3.30

Voltage: 11-12. Power: 16-18 watts. Supplied with 9ft of 2-core lead. Price includes VAT, postage and packing.

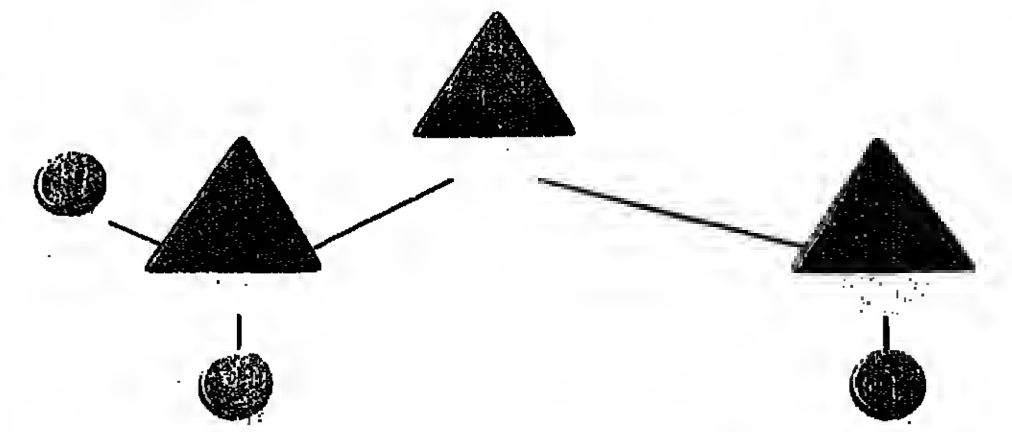
ALSO THIS MONTH: A unique design for a pick-up arm, separating horizontal and vertical pivots.

wireless world

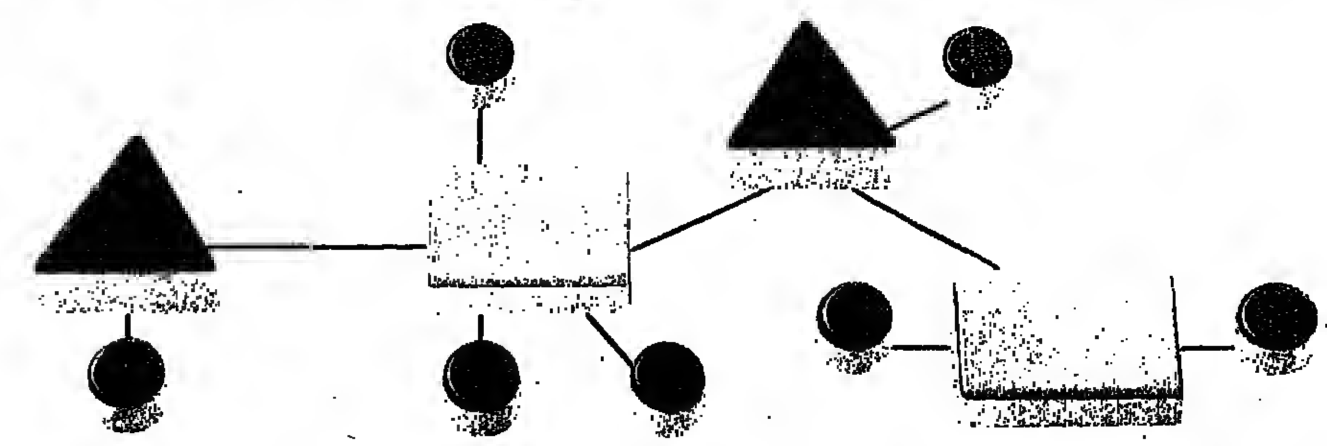
November issue. Out now 60p

DIGITAL HAS X.25 CAPABILITY. A NEW DIMENSION IN NETWORKING.

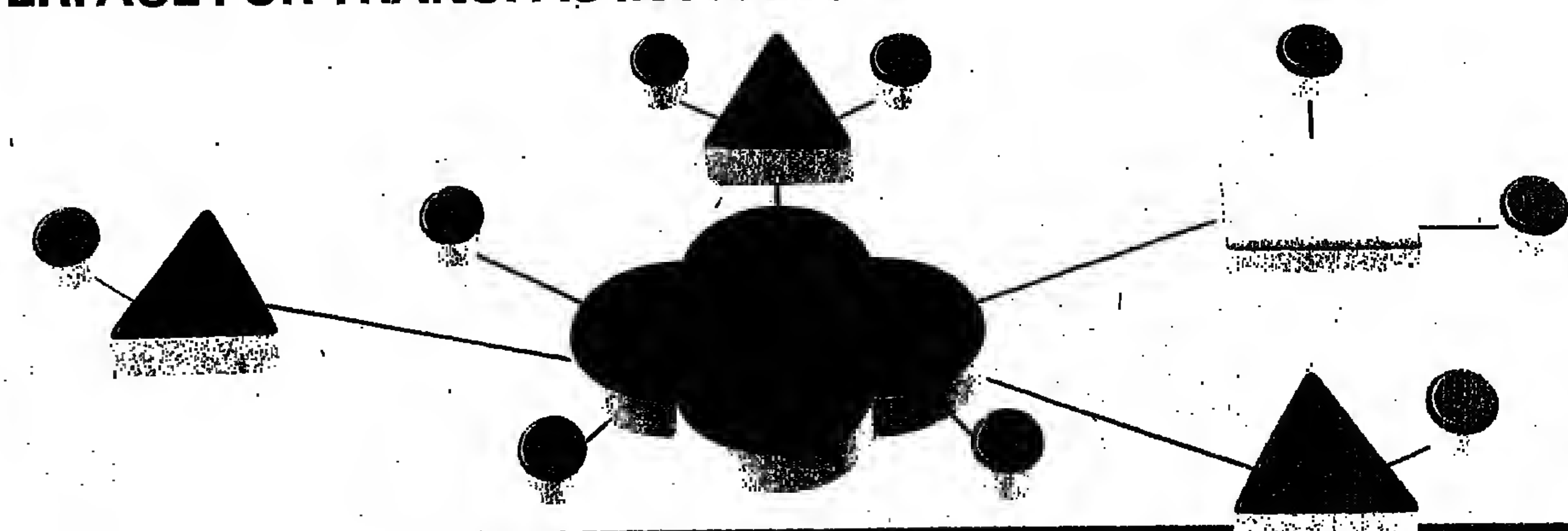
WE PIONEERED NETWORKING WITH DECNET™ OUR CONTRIBUTION TO DISTRIBUTED DATA PROCESSING.



WE DEVELOPED INTERNET™ SOFTWARE, TO ALLOW DIGITAL'S COMPUTERS TO TALK TO OTHER PEOPLE'S MAINFRAMES.



NOW WE HAVE X.25 CAPABILITY, A PACKETNET™ SYSTEM INTERFACE FOR TRANSPAC IN FRANCE.



MINI-COMPUTER · TERMINAL · MAIN-FRAME · X.25

Now, Digital's computers can communicate over public packet-switched networks.

Currently, packetnet system interface to TRANSPAC in France, is available for use of TSX-11M and RSX-11M plus systems. The packetnet system interface can also communicate with asynchronous terminals connected to the network.

Furthermore, we are firmly committed to supporting other major European public packet-switched networks.

Digital is adding a new dimension to networking.

Digital Equipment Co Ltd, Digital House, 252-256 Kings Road, Reading RG1 4HS.

digital

WE CHANGE THE WAY THE WORLD THINKS.

ARC local network is star of Ventek's autumn roadshow

VENTEK started its roadshow off in London last week at the Bloomsbury Centre Hotel. During the next few weeks, the show will travel to Birmingham (October 28 to 30), Manchester (November 3 to 5), Bristol (November 9 to 10), Leeds (November 11 to 13), Edinburgh (November 17 to 19) and back to Birmingham (November 25 to 28).

On show will be the two year old proprietary local area networking system, ARC, from Datapoint in the US as well as the NBI word processing system and the UK-made Data Recognition hand-held terminal.

Coaxial cable

The ARC, Attached Resource Computer, uses coaxial cable carrying data at 2.5 megabits per second to link up to 254 processors. These can be: a file processor such as a 256K-byte Datapoint 6600 controlling twin 60-megabyte disc drives, which costs £51,000; a £5,000, 64K-byte model 3800 application processor running word processing or data entry software; or a payroll program.

The NBI system is a stand-alone word processor which costs from £7,500 and comes from a firm at Boulder, Colorado, whose initials stand for Nothing But Initials. It was launched in the UK in February, although it has been on sale for two years in the US and is claimed to be the fastest selling word processor there.

First time

The hand-held terminal from APT Data Recognition, the Reading based subsidiary of the Unitech distribution group, is called the Datapoint 5.

Costing about £1,000, it is three months old and is being given its first exposure at the roadshow.

Based on a CMOS 8-bit processor, Datapoint can have from 1K- to 16K-bytes program memory and from 16K- to 8M-bytes of data storage, and can be fitted with a television adapter, an acoustic coupler, a bar code reader or a printer, as well as having a 16-character 17-segment LED display built in.

BT to develop 9600 bps modem

A MODEM for two-wire duplex data transmission at 9,600 bps over ordinary dialled telephone connections is being developed by British Telecom at its Martlesham Research Laboratory near Ipswich.

The development is planned to make high-speed digital links widely available for use with facsimile, slow-scan television, text transmission, packet switching and other data services as they grow.

Production versions are expected to be on the market in 1983.

Development

The development has several parts. An adaptive echo canceller is used to achieve duplex operation and work in this area is also being applied to loudspeaking telephones, satellite links and 80K bps subscriber lines for carrying simultaneous voice and data traffic.

The modulation technique used, quadrature amplitude modulation, uses four variations of the amplitude and four variations of the phase of an 1,800 Hz signal. Following satisfactory tests, the design is being implemented in seven LSI five-volt NMOS circuits to bring down the size and cost of the production version.

This technology is compatible with processes used by General Instruments and Plessey, although no agreement has yet been reached on manufacture.

Minor corrections are being made to the masks of the first chip to be sampled, and debugged samples of all seven are expected by the end of next year.

CCITT, the standard-setting body for the PTTs, has subcommittees evaluating methods of implementing echo cancellation and frequency division for two-wire duplex transmission. Frequency division is said to have the advantage at speeds up to 2,400 bps, but at 9,600 bps there is not enough bandwidth on voice-grade lines to share between two separate carrier frequencies.

British Telecom has been running field trials of 1,200 bps modems for two-wire duplex operation and is about to place bulk orders for them.

THE Chesham Building Society, Britain's oldest society, became a first-time computer user when it installed an NCR 8230 system earlier this year. Previously it had used ledger books.

Established in 1845, the Chesham currently uses the system to run online investment accounting and a mortgage application is to be implemented in December.

Installed at the society's Chesham office, the NCR 8-8230 system has 64K of memory, a disc drive, a printer and two video terminals

Pressmen win small online victory

JOURNALISTS on the Minneapolis Star and Tribune have given their light for extra payment for news stories that are distributed electronically on public information services as well as being printed in the paper.

However, as part of the strike settlement, journalists' union the Newspaper Guild has been given the exclusive right to prepare advice that are fed to online databanks.

Implications

The agreement has implications for newspapers throughout the US that are thinking of providing news online to anyone who has a terminal, as a by-product of the printing process.

The Minneapolis Star and Tribune is one of the 11 daily papers in line to be connected to Group W's Cable's Knowledge's bureau service providing news all over the US. On July 24, the paper is due to go online in late 1981.

The Star's business manager Lee Canning, said: "It's hard to measure what effect the settlement will have because the whole thing is so new."

Other issues in the strike settlement involve rises about pay, but these have also been settled.

System to end rows over hotel phone bills

A SYSTEM intended to prevent confrontations over telephone bills between hotel managers and guests has been introduced by a Luton-based firm.

Called Hotel-Tag and from Systems Reliability, the system records the digits dialled, time, date, duration of the call and whether it is local, STD or international.

An extension of System Reliability's Tel-Tag system, Hotel-Tag is said to prevent misunderstandings over charges for international calls — something which has caused problems for hotels since the introduction of international dialling.

Lose out

Without evidence such as that provided by Hotel-Tag, hotel management are reckoned to lose over 90% of disputes over call charges.

Hotel-Tag operates in stand alone mode or as part of a front hall accounting system, where telephone charges are included in the guests' bill. Unit charges are set by the hotel and may be varied according to the number of units used.

Hotel-Tag 600, the latest model in the series, monitors up to 600 lines. A typical configuration would comprise 50 exchange lines, 100 administration extensions and 50 bedrooms.

The system may be upgraded to control up to 1,000 lines.

Applications packs win Burroughs the order

THE availability of local authority applications software was a major factor in a decision by Brecknock Borough Council of Powys, South Wales, to switch from NCR to Burroughs equipment.

Software in the £80,000 order includes Burroughs online Local Authority Rating System and the Registration of Electors package.

Due for delivery in December, the small range B1955 will also be used to run such applications as payroll and financial management, including creditors' payments and financial ledger with budget accounting.

Expected to be live by next April, system configuration includes 524K-bytes of main storage, 8K-bytes of cache memory, 130K-bytes of online storage and a 650 lpm printer.

The council has also ordered TD 830 VDUs for online inquiry and interactive updating and remote AP 320 cash receipting terminals.

Meanwhile, the Irish Civil Service Building Society, with 42 branches one of Ireland's largest societies, has decided to upgrade from a Burroughs B700 system to a Burroughs B1800 system.

To be installed at the society's Dublin head office, the system will handle applications such as investment and mortgage accounts, statistical analysis and nominal ledgers.

The order is worth about £85,000 and the configuration includes a B1815 central processor

Weather centre

THE Indian Government is given the $5.5 million contract for the centre which will process data from its Time-Nimbus weather satellite. System Development Corporation, California firm which is the subject of a takeover bid from Burroughs, the centre, in New Delhi, will be equipped with Digital Equipment PDP-11 minicomputers. Data from the satellite will be used in daily weather forecasting, storm forecasting and flood control.

Odometer

AN ELECTRONIC odometer that can retain a vehicle's total mileage under all conditions, including the loss of power, has been developed by National Semiconductor. The device uses four-bit bipolar PROM for mileage storage and a COP420L microcontroller as the programming device.

Users face 22% rises in maintenance bills

A REPORT* from the United States reckons that over there more than 40% of the average DP budget goes on hardware and software maintenance.

It goes on to forecast that user expenditure for maintenance will increase at the rate of 22% a year until 1985, and fall to 18% a year from then till 1990.

Faced by the prospect of such trends, manufacturers and users in the US are looking for ways to reduce their maintenance expenditure.

In the short term, manufacturers are looking to give the users as much of the maintenance responsibility as they possibly can.

Users are being offered relatively lower prices for accepting the responsibility for some of the maintenance work, and are being encouraged to train their own engineers to carry out some of the maintenance work.

In the long term, manufacturers are aware that the only real way to reduce costs is to include more maintenance and diagnostic facilities in the design of the systems in the first place. Burroughs' Tandem, for example, already claims to have a non-interruptible system.

The report points out that, from the manufacturer's angle, the biggest danger in handing over so much maintenance responsibility to the user is that he will become too self-sufficient and therefore be no open to equipment from other manufacturers.

*Strategic Analysis of Hardware and Software Maintenance. 95[illegible] for Software Services Inc, San Jose

20 mbyte disc drive for V77s

A TWENTY megabyte disc drive, three line printers and a high speed magnetic tape drive are new peripherals for use on Univac's V77 minicomputers.

Available by the end of the year, the Model F3359 20 megabyte cartridge disc drive comes with 15 megabytes of fixed storage and a 5 megabyte removable disc cartridge. One controller can handle up to four drives.

Also available by the end of the year, the Model 0789 Printer Series provides three line printers with print speeds of 180, 300 and 600 lpm respectively. Print bands are interchangeable and the 180 lpm device can be upgraded to 300 lpm.

The 0876 magnetic tape drive is a dual density device which writes at 800 bpi and 1600 bpi, with respective transfer rates of 100K-bytes per second and 200K-bytes per second. One controller will handle up to four drives.

NPL service launched

THE National Physical Laboratory has launched a "Microprocessors in Meteorology" consultancy service for manufacturers of measuring equipment, gauges, tools and instruments. In certain cases clients may be eligible for grants, as NPL is authorised under the Mapcon scheme. The NPL is on 01-977 3222.

When will the oil run out?

Practical Computing

tells you how to find out...

The November issue, available from leading newsagents, contains a program based on the computer model which gave rise to the Club of Rome's famous "Limits to Growth" report in the early 70s. So if you want to model the world economy on a microcomputer and find out when the oil will run out, buy Practical Computing.

Also in this issue:

Reviews of the 5120, IBM's bid for the microcomputer market, and the Acorn Atom, a £150 micro with high resolution colour graphics facilities.

And on the software side, a review of muSimp — a package that does algebra trigonometry and calculus, and a description of a program for controlling model trains.

All this, plus a Software Buyers Guide and our regular advice columns for users of Pet, Apple and Tandy micros for only 60p. From your newsagents or post this coupon now.

Out October 22nd.

To: Marketing Services Department, Room 316, IPC Electrical Electronic Press Ltd., Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Please post me a copy of Practical Computing every month for a year. I enclose cheque/p.o. for £8 (inc) payable to IPC Business Press Ltd.

NAME

ADDRESS

CW3

Milgo controller for complex nets

RACAL-MILGO has launched a controller for large and complex networks, the CMS communications management system. It was developed in the UK with the aid of a 25% investment grant from the Department of Industry towards the £½ million development costs.

The system is based on a Digital Equipment PDP 11/34, as was an earlier US-designed network controller the Model 185 which is now installed in 10 networks supporting more than 1,000 terminals each, but this one is designed to support up to 10,000 addressable modems and multiplexers.

Although the smaller versions are designed to help bring efficient operation and reduced costs to small networks, the larger systems aim to make it possible to operate large networks that would be too unwieldy to manage without some such tool.

Split

Management of a large international network can be split between up to four separate sites in a medium-sized CMS system and the responsibilities for each console can be assigned as geographical parts of the network or as functional parts.

For example, the responsibility could be split between the US and European portions of a network, or between the parts involved in batch access and those involved in interactive access, or one site could be concerned with security aspects of network operation while another is concerned with the general management of the network.

Directed

Alarm information is then directed to the appropriate site when a fault occurs, where the operator can call up diagrams of the network on one or two colour graphics displays, while he reconfigures links around the faulty section and runs tests on suspect equipment from a split-screen VDU. System prices start at £47,000.

At the same time Racal-Milgo launched a new family of statistical multiplexers, the Omnimux, developed at the main production plant in Miami, Florida. The range contains three models, covering four to 32 channels, and it is designed to be compatible with Racal's modems, offering net work control facilities via a separate supervisory channel.

Independent

All channels can run at up to 9,600 bps and can take data from any source independent of the protocol used. Multiplexing is bit interleaved and channels contend for time slots, only passing data when the request to send has been acknowledged.

Three types of printed circuit card are used throughout the range: asynchronous and synchronous channel cards and an aggregating card which also controls the front panel. Extra RAM can be added to enlarge the data buffer to cope with the delays experienced in satellite transmission.

Timeplex launches stats multiplexer

MULTIPLEXER maker Timeplex has announced a 48-channel addition to its Microplexer range of statistical multiplexers and other data communications products to be shown for the first time at Compec next month.

It also announced that its turnover of $17 million for the year ended June 30 had grown by over 40% for the eighth year running.

The new Microplexer, the M48C, doubles the previous maximum of 24 channels handled by the range and each channel can be synchronous or asynchronous, with speeds up to 9,600 bps, characters from five to eight bits and odd or even parity. Synchronous channels can now communicate using IBM SDLC, ICL, Honeywell and CDC protocols, as well as IBM bisync which was already supported.

Support for Univac and Burroughs protocols is to be added by the end of the year.

On the line side X25 Level 2 is used, with cyclic redundancy checks being inserted so that errors can be corrected by automatic retransmission.

Other products announced included the M100 software demultiplex unit, which converts the synchronous data stream received down the line into an asynchronous format to be fed to a CPU or front end processor for demultiplexing internally, the M2 Accuflink error corrector, for asynchronous links running at 300 to 2,400 bps between minicomputers or feeding simple terminal devices such as plotters and the CM310 data channel monitor, which can display up to 2,000 bytes of data on each of three channels running at up to 19,200 bps.

£225,000 boost for Ada work at York

THE Science Research Council has awarded a £255,000 grant to York University to support research and development in software development which includes the writing of an Ada compiler.

The work carried out by the Department of Computer Science at York has been funded to the tune of £455,000 over the last five years.

The York Software Technology Centre concentrates mostly on the development and programming of real time embedded systems. It studies the languages used for such systems and is also working on the Ada language.

Professor Ian Pyle and Dr Ian Wand of the department were both consultants to the CII-Honeywell Bull design team and Professor Pyle runs the Ada UK organisation from York to provide information on the progress of the language.

The grant will be used to provide a new Vax 11/780 from Digital Equipment to be housed in a specially converted laboratory and supporting 16 terminals. It is to be used for the development of software tools, including the Ada compiler. The compiler is expected to be ready by 1982 as a part of the Ada Programming Support Environment.

Easy upgrades clinch order for Univac

THE availability of a high level programming language and the fact that the system facilitates relatively easy upgrade have prompted the Coswold Building Society to order a Univac BC/7 business computer.

Called Escort, the programming language enables non-computer specialists to program the system by means of statements written in the English language.

Replacing two visible record computers, the BC/7 system will run a software package developed for building societies by Genasys Computer Software of Cardiff.

Written in RPGII, the Genasys system deals with online account inquiries, arrears reporting and the preparation of appropriate notices, interest warrants and certificates, statements for borrowers and multiple branch accounting.

The BC/7 will be installed at the society's offices in Watton-Under-Edge, Glos. Hardware configuration comprises a BC/7-800 processor with 128K of main storage, 20 mbytes of cartridge disc store, two VDUs and a line printer.

Own software

THE Nippon Steel Corporation, which used to farm out its software jobs to independent companies, has formed its own software production firm. The new firm, Nippon Steel Computer Systems, has ¥50 million (about £100,000) of capital and will undertake programming and systems development for the head office, and works at Nagoya, Kimitsu and Tokyo.

Aiming at PoS market

JAPANESE electronic cash register manufacturer, Omron Tateisi Electronics, has formed a UK subsidiary to deal with what it considers to be the growing point-of-sales market.

Called Omron Terminals (UK) Ltd and based at New Malden, Surrey, the company has set up a nationwide network of technicians to provide a full range of manufacturing, marketing and servicing facilities.

Its latest product, Omron System 80, is a medium-sized cash register which can be equipped with an OCR reader, optical scanner, cassette, floppy disc, VDUs, weighing scales, modem for data transmission, 256K of memory for price look-ups and a linked terminals system.

Perex back-up help for Winchester users

WINCHESTER discs give systems access to up to 50 million bytes of data but, as the devices are fixed, there are potential problems in relation to data security — files may be accidentally over-written, or the equipment may be damaged or stolen.

With that in mind, Perex is busy producing its HD 6400, which is intended for back-up and data transfer on Winchester discs. The manufacturing part of the Sintrom Group, Perex, has opened an office in Silicon Valley, California and intends to market in the UK and Europe as well as the USA.

According to Briton David Sear, who is in charge of the US office, the company has already received evaluation orders from several Winchester users in the US.

Here, Sintrom managing director T. D. Dalzell (left) is inspecting the HD 6400 in the assembly area.

IBM plans Fortran 77 compiler

AN IMPLEMENTATION of Fortran 77 has been announced by IBM, planned to be available in April 1981. Fortran 77 was accepted as an Ansi standard in April 1978 but has been relatively little used. This has been attributed to IBM's reluctance to adopt the new standards.

The other major manufacturers will probably be quick to join IBM and some — including Univac, Digital Equipment and Data General — have already announced their implementations.

Major extensions to the standard accepted by IBM VS Fortran include free form source and an INCLUDE statement. A batch debug facility is also provided.

Optional flagging of non-standard syntax is provided, either at full language or subset level.

Property scheme

A TEXAS Instruments' Model 771 small business system has been used by Leicestershire-based firm, Micro Owl, with an Omni 800 Model 810 printer in the development of a property tailoring scheme for estate agents.

Wilkes Computing for General Robotics Systems

Gemini
DEC PDP 11-03, 2.5Mb FLOPPY DISK
£5135

Gemini Plus
DEC PDP 11-23, 2.5Mb FLOPPY DISK
£6835

Super Gemini
DEC PDP 11-03, 8Mb WINCHESTER
£7810

Super Gemini Plus
DEC PDP 11-23, 8Mb WINCHESTER
£10,810

WINCHESTER SYSTEMS INCLUDE 2.5Mb DD/DS FLOPPY DISK

SPECIAL

DEC PDP 11/23, 64KB PLUS MMU £1750

LESS CREDIT FOR 11/2 [KD11-HA] RETURNED IN WORKING ORDER
£205

Wilkes Computing
Bush House, 72 Prince Street, Bristol BS1 4UQ
Tel. (0272) 25921 Telex. 449205

DD 912/920 VDUs.

Big company backing: 6 months on-site warranty.

Good value! 132 column platen.

ddg Data Dynamics Group

The DDZIP Family for versatility.

Intelligence at low cost.

Teletype 43 RO/KSR/ASR.

5 and 8 level codes.

Range now includes twin-cassette ASR.

Head office
Gate House
Springfield Rd
Hayes, Middx
Tel: 01 848 9781
Telex 935429

Scotland
Elvaine House
68-73 Lucan Street
Edinburgh EH26NF
Tel: 031 226 6201/2

Manchester
320 Mosley Road
Levenshulme
Manchester M19 2LM
Tel: 061-224 3306/7

ANSWERPHONE FOR AFTER HOURS SERVICE CALLS ARE
01 573 3994 061-224 3306 031 226 6701

COMPANY NEWS

US starts to get over depression

A CLUTCH of third quarter results from major DP firms in the US show a markedly different outcome to trading through what President Carter called the bottom of the depression over there.

Higher sales at IBM and, to a lesser extent, at NCR gave them both increased earnings, but component shortages choked off Burroughs' production and caused a sharp drop in profits for the quarter.

In fact, Burroughs is going through its worst patch for 17 years and, as reported briefly last week, year-on-year profits were down for the second quarter running. The company does not hold out much hope of an improvement in the fourth quarter.

Net profit slumped 32% to $42.2 million on turnover up 4% at $699.3 million. The main reason for the slide in profits and meagre growth in turnover has been problems in meeting demand for new products, led by component shortages.

To make matters worse, a strong order position began to soften in the third quarter, and the prognosis is that profits will be down 20% for 1980 as a whole.

32% rise

Meanwhile IBM's third quarter results rose by the same 32%. The company announced net profits up that amount at $883.9 million on turnover up 20% at $6,480 million. The rise was the best in a quarter from IBM since 1974 – but it is compared with a poor third quarter in 1979.

Main reason for the surge was a favourable change in the outright sales to rentals and services ratio – and IBM has been manipulating its prices to achieve just that.

Sales were up 25% to $2,590 million, whereas rentals and services rose only 17% to $3,890 million. While sales moved ahead 6% over the second quarter, rentals and services rose only 4%.

Currency gains helped to swell its profits, contributing $17 million, compared with $5 million in the same quarter in 1979.

Since IBM's fourth quarter last year was better than the third, the improvement in the current period is not expected to be so strong. For the first nine months of 1980, profits were 16% up.

Finally, NCR has put its component shortage problems behind it in the third quarter, and has reported profits up 15% at $54.5 million on turnover up 12% at $792.3 million.

While orders are falling in the US market, they are increasing slowly in the rest of the world.

Finance subsidiary boosts Control Data's profits

CONTROL Data Corp has been very successful in recent years in ironing out the pits and troughs of its business as a result of having a financial services company, Commercial Credit, which often does well when the computer side is off-colour – and vice-versa.

The company saw net profit up 6% at $40.2 million on turnover up 16.5% at $938 million.

Most of the improvement came from Commercial Credit; on the computer side, it managed a 2% increase to $24.6 million in profit on turnover up 23% at $687.9 million.

The figures are distorted by extraordinary gains – offsets against tax from previous years, which amounted to $2.2 million in the third quarter of last year, and only $600,000 in the period just ended.

Profits at Commercial Credit rose 14% to $15.6 million on turnover almost static at $240 million.

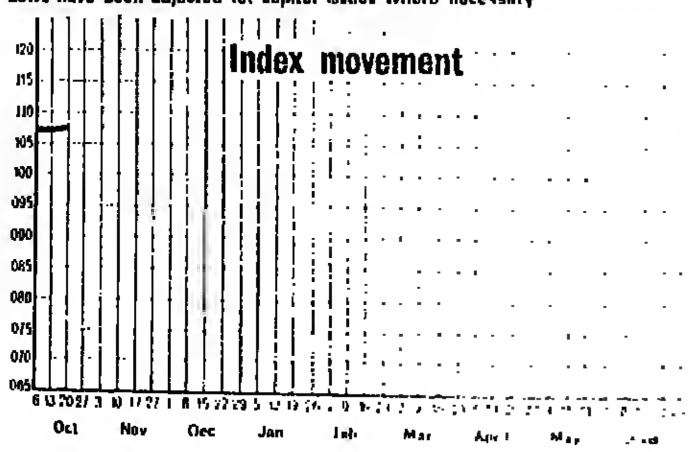
The 23% surge in sales in the computer business was accounted for primarily by expansion of its OEM peripherals business.

CW SHARES TABLE

Date: 17/10/80

Pence 1980 High	Low	London Stock Exchange Stock	Pence Price	Change
615	210	A Comp Tech 12½p	170	-10
98	66	BOC Int 12½p	98	-1
41	25	B Bus Form 12½p	[illegible]	
120	85	Chubb 20p	86	1
100	88	Cole (H H) 12½p	[illegible]	
875	540	De La Rue 12½p	855	+15
180	148	Extel 12½p	168	-2
490	231	Ferranti 50p	448	[illegible]
598	315	GEC 12½p	536	-10
181	116	ICL 12½p	141	-2
81	64	Kalamazoo 10p	74	1
345	203	Kode Int 12½p	[illegible]	10
270	108	Muirhead 12½p	118	4
357	231	Office & Elect 12½p	[illegible]	-12
470	353	Philips Lamp (Fl 10)	[illegible]	20
266	108	Plessey 50p	[illegible]	-16
170	78½	Quest Auto 10p	168	2
311	109	Racal Elect 12½p	[illegible]	11
104	85	Rediffusion 12½p	101	2
334	267	Thorn EMI 12½p	[illegible]	12
$ 1980 High	**Low**	**US Stocks Stock**	**$ Price**	**Change**
34⅞	16⅛	Amdahl	[illegible]	[illegible]
[illegible]	11¾	Ampex	[illegible]	[illegible]
61	31¼	Auto Data Pro	49	[illegible]
84	57¼	Burroughs	[illegible]	[illegible]
27¼	[illegible]	Comp Automation	[illegible]	[illegible]
29½	[illegible]	Comp Sciences	19	[illegible]

The table shows the closing prices in London on Friday and in America on Thursday. The share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted for capital issues where necessary.



Wall St goes wild about Apple

THE US investment community is going Apple crazy – the microcomputer maker has not even published the prospectus for its forthcoming share issue.

It is being forced into the issue by regulations which say that when a corporation reaches a given size it must go public – and Apple has dramatically overshot the ceiling.

However the founders wish to sell as few shares as possible. This means that most wall-street stags – people who buy an issue in the hope of making a profit when they sell them once dealings begin – will be disappointed.

Glamour

Reason for the excitement, apart from the fact that this branch of the high technology sector is Number One in the glamour stakes at the moment – is its meteoric growth.

From a turnover of $2 million only two years ago, it is expected to hit $150 million this year and $500 million in 1981.

● The firm has resisted the temptation to repeat Paul McCartney's gag of the 1960s by calling itself Apple Corps: its full name is Apple Computer Inc!

Veteran Wall Street brokers warned that demand for the shares could lead to unrealistically high prices.

Storage revises Documation bid

AFTER turning out the Documation cupboard, Storage Technology has discovered some skeletons and, as a result, revised the terms of its takeover of the Florida printer manufacturer.

It will still pay an overall 0.85 Storage Technology share for each Documation one, but holders of the latter's shares will only get 0.72 of a share and will have to wait for the remaining 0.13.

This is going into an escrow account to cover liabilities incurred by Documation which have only just been uncovered. They relate to three legal actions against Documation. Two are actions alleging violation of securities legislation and the third is an action by a shareholder.

The value of the escrow account will be about $8 million.

GREAT SINTROM SALE

5¼" Micropolis Floppies

✱ HURRY this offer ends November 1980 and is subject to availability.
RING READING 85464 NOW to cash in on this unique offer.
All drives carry a full 12 months labour and parts warranty.

Sintrom Electronics

Sintrom Electronics Ltd
Arkwright Road, Reading, Berks RG2 0LS
Tel: Reading (0734) 85464
Telex: 847395

Now is your chance to upgrade or extend your S100, Tandy, Sorcerer, etc. system with one or more of these renowned Micropolis Disk Drives now available from us at fantastically reduced prices.

S100/SORCERER
Single drives (143K formatted storage) from only £193.00
Dual drives (630K formatted storage) from only £394.00

TANDY
Specially configured single drives with internal power supply from only £189.00
Dual drives from only £410.00

Model that gives a picture of the firm's activities

DATA ANALYSIS

Section I Part 4

A great deal of space is devoted in computer publications to technical issues – new hardware, new software, new programming techniques and so on. The only reason the new hardware and software are produced or the programming techniques are developed, however, is because a user, somewhere, somehow, wants a computer system.

The DP task closest to the end user is analysis, and in this series Rosemary Rock-Evans describes Data Analysis, a method developed by Ian Palmer, technical director of the consultancy CACI. The 27 parts of the series will appear as two separate sections.

Analysis is a sadly neglected area. Present methods tend to concentrate on the functional aspects of systems, and ignore the data aspect.

Data analysis is a methodology which links the analysis of functions and data together into an integrated, disciplined, structured approach involving the end user. This series explains the basics of the approach.

IN parts 1-3 of this series, three basic concepts — entity type, relationship type and relationship degree — were introduced. In this part the three concepts will be used to produce a pictorial representation of what the business is interested in. This picture is called the entity model.

There are two reasons why an entity model is drawn:

1. Entity analysis can result in the recognition of many hundreds of entity types and relationship types. The entity model provides a concise summary of the results of the analysis in the form of one diagram, which can serve as a basis for discussion or be used to arrive at a more detailed knowledge of the business.

2. It is the entity model which is used as the basis for database design. The structure of the entity model will be mapped, taking into account all the information which will be discovered in the later stages of data analysis, onto the logical structure of the database.

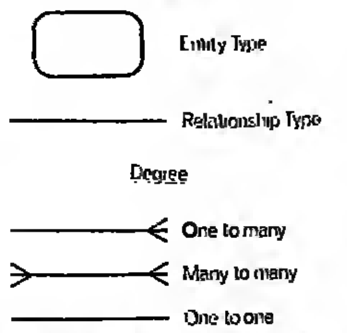


Figure 1. The diagrammatic representation of entity and relationship types.

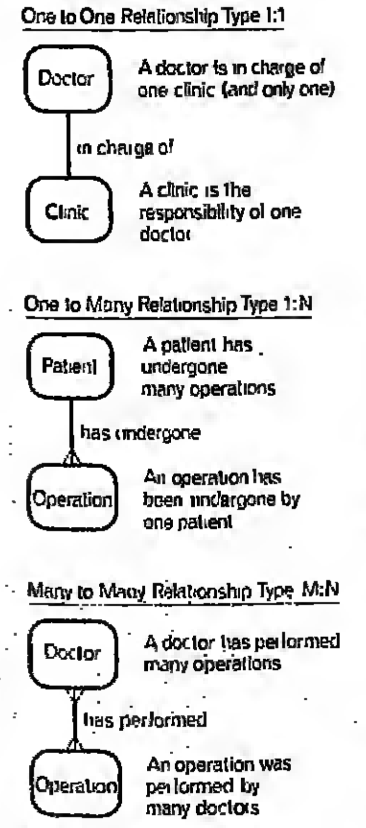


Figure 2. Types of relationship.

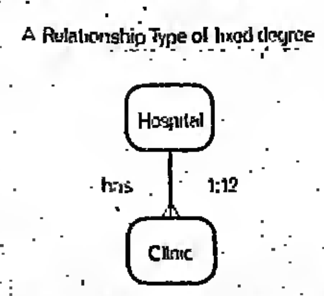


Figure 3. Relationship type of fixed degree.

How to draw the model

The entity types and relationship types are represented diagrammatically, as shown in Figure 1.

An entity type is represented by a rounded box, a relationship type by a line joining the boxes together, and the concept of degree is shown by a delta or crow's foot, the "many" side of the relationship type being the side where the crow's foot is placed. Relationship types of degree many-to-many are represented by two crow's feet and relationship types of degree one-to-one need no crow's feet.

Examples are provided in Figure 2 of how each relationship type would be shown. Note that the name of the entity type is written in the box and the name of the relationship type is written along the line.

Fixed degree

Where the actual degree of the relationship is known, it is called a fixed degree relationship type and the degree can be written onto the model.

In Figure 3 an example is given of a hospital and clinics. The hospital which is under study has 12 clinics, hence the degree is fixed at 1:12.

Involuted relationship types

When an entity type is related to itself, the diagrammatic representation is called an "involuted" data structure. Figure 4 shows the diagrammatic representation of the relationship type Doctor works with Doctor, which in this case is of degree many to many.

Optional relationship types

It is useful when drawing the model to incorporate the "optionality" of a relationship type. A relationship type is optional if occurrences of either one or both of the entity types associated in the relationship type may exist without participating in a relationship of that type (this will have particular importance when the design of the database is considered). Figure 5 shows the diagrammatic representation of optionality.

When just one of the two entity types may occur without participating in a relationship, the relationship type is said to be "contingent" and a dotted line is drawn against the entity type which need not participate.

When all entities of both types participate in a relationship of that type, the relationship is said to be "mandatory" and is shown by a solid line.

When occurrences of neither entity type need participate in a relationship of that type, the relationship is said to be "fully optional" and is shown by a dotted line. Examples of the three types are given in Figure 6.

In this introduction to entity modelling most of the basic constructs have been described, plus the new concepts of fixed degree, involution and optionality. In the next article relationship types will be discussed again, using the modelling tools to refine our picture of the environment.

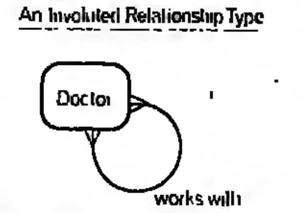


Figure 4. An involuted relationship type.

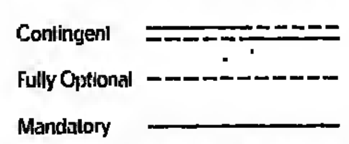
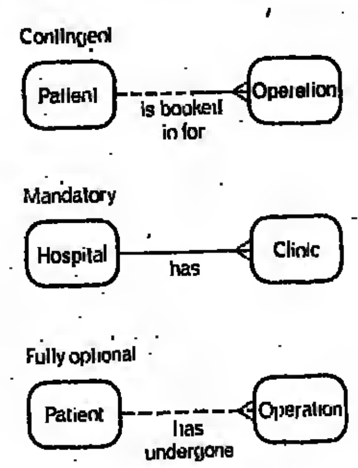


Figure 5. Optional relationship types.



(i.e. it is possible there were planned operations that never took place because of, say, cancellations)

Figure 6. Example of optional relationship types.

B4, 61A moves to F3, 115

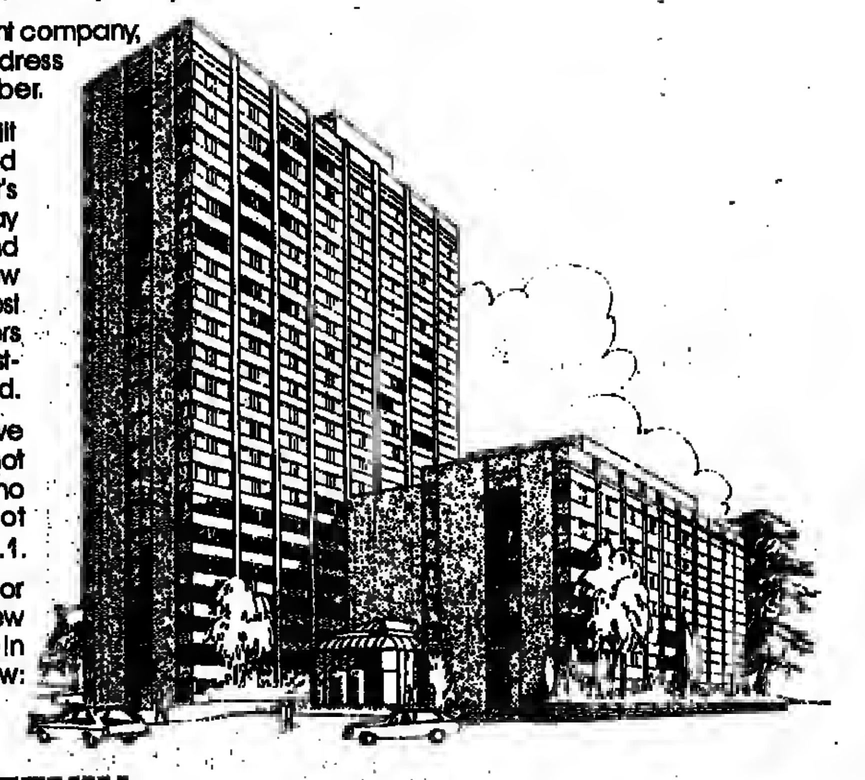
...or if you haven't got a pocket edition of the current Geographers' A to Z of London with you: Dorset House, Stamford Street, S.E.1. moves to Quadrant House in Sutton, Surrey.

This is the new headquarters of our parent company, IPC Business Press—and our new address as from 1st December.

It's a brand-new, purpose-built tower block of twenty storeys linked to a low-rise block of seven, and it's situated right by Sutton railway station. The environment is nice and the facilities are impressive: our new telephone system is one of the most modern in the country and callers will receive just about the fastest-answering service they've ever had.

This is only one way in which we hope our move will be of benefit, not simply to us, but to everyone who has been used to contacting us at Dorset House, Stamford Street, S.E.1.

We look forward to seeing or hearing from you at our new address, so please make a note in your diary now:



COMPUTER WEEKLY moves on 10 November 1980 to
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS
Tel: 01-661 3500 Telex: BisprsG 892084

A member of IPC Business Press Ltd

Contact Xenia White

marketplace

For Advertising Rates PHONE 01-261 8757

SK DEC SYSTEMS FAST!

SK COMPUTER SYSTEMS LTD

- PDP 11 BASED COMPUTER SYSTEMS
- FULL RANGE OF SOFTWARE
- PER CALL OR CONTRACT MAINTENANCE AVAILABLE
- WIDE RANGE OF DEC COMPATIBLES

YORK HOUSE, STEVENAGE ROAD HITCHIN, HERTFORDSHIRE, SG4 9DY

telephone 0462-31116 telex 825647 Sk Sys

digital systems and compatibles in stock

* PDP11/03 TO VAX 11/780
* TOTAL DEC, OR COMPATIBLES
* APPLICATION SOFTWARE

FAST DEC! FROM Systek

HR House, High Road, North Finchley, London N12 0AZ Tel: 01-349 2911 Telex: 28227

FOR SALE:

IBM compatible Floppy Diskettes at £1.50 each.

NCR 282 Paper cartridges at 50p each.

1 Rex LDC Double Diskette Drive (previously used interfacing to an NCR 4991 Accounting Machine). OFFERS PLEASE!

Contact Mr W. Daniels, TCP GROUP SERVICES LIMITED, Pensnett Trading Estate, Brierley Hill, West Midlands

Telephone Kingswinford 6123, Ext.392

DEC PDP11

For new/used Processors, Peripherals, Modules or complete systems

Call Peter Stock or Peter Hufton 0602-861774 Dectrade Ltd, 11 Musters Road, West Bridgford, Nottingham. Telex 377678 VIDEUR.

DMCS Tel 061-643 0016 ... COMPUTER SERVICES

AIR FILTERS & MAGNETIC HEADS

SEE US AT COMPEC '80 ON STAND NO. 6163 AT OLYMPIA, ON NOVEMBER 4, 5 & 6

Magnetic Heads and Air Filters available on stock for the following Disk Drives: CDC, AMPEX, DATA GENERAL, DRI, DIABLO, CALCOMP, IBM, PERTEC, WANGCO, MEMOREX, IOMEC, DEC, ISS, BASF, ETC.

VAS COMPUTER PARTS AND ACCESSORIES LIMITED, TOWER HOUSE, COLLEGE ROAD, BROMLEY, KENT, ENGLAND. TELEPHONE: 01-464 5895. Telex: 898659 CALL US FOR FURTHER INFORMATION AND BROCHURES

BUYING SELLING LEASING COMPUTER RESALE BROKERS CRB

SPECIAL OFFER

Computhink 400K Random Access Disc Drives and 32K Expandamem for use with old ROM PETS.

ORIGINALLY: £1116.

OUR PRICE: **£650**

including Kingston's own full one-year service and support guarantee.

KINGSTON COMPUTERS LTD. Electricity Buildings Filey, North Yorkshire YO14 9PJ Tel: (0723) 514141

POINT OF SALE TERMINALS

Avoid the 6-month waiting list. Four new IBM 5265 programmable point of sale terminals available for sale or lease immediately.

Telephone 01-459 1380 or 01-491 2782 for further details

WE ARE MOVING

Computer Weekly are moving offices, and as from 10th November, 1980, our new address will be:

QUADRANT HOUSE THE QUADRANT, SUTTON SURREY SM2 5AS Tel: 01-661 3500 Telex: 892084 Bisprs G.

FOR SALE

FOR SALE UNIVAC 1100/11 system ...

Intel 8080 based Micro, 24K Ram, dual 5¼ inch mini floppy drive, 24 x 80 VDU, serviced and checked by manufacturer.

£1,500 o.n.o.

Tel: 01-883 6585 mornings or evenings

HALF PRICE

BRAND NEW FLOPPY DISC DRIVES, PLUG COMPATIBLE WITH DEC RX01, FOR LESS THAN HALF THE DEC LIST PRICE.

Phone: John Shave on Farnborough (Hants) 44433 for details

FOR SALE

Offers invited. Contact M. Eastwood, Sheffield City Polytechnic, Sheffield (0742) 20911 Ext. 369

TEXAS INSTRUMENTS 810

£1,150 each

including 6 months on-site warranty. Quantity discounts available. DEC, Teletype, Newbury, HP, Datamedia, Qume, ... North Star Horizon, Couplers also in stock. Phone Stag Terminals. 01-943 0777

FOR SALE

IBM 370/148 JOD AND IBM 3830 Disk Controller. For further details contact Mr. G. Freeman on Chesterfield 77241 Ext. 2329.

THE RSTS/E. REGISTER For all independent professionals PROGRAMMERS– SYSTEMS DESIGNERS Contact Peter Dick (01) 748 6577

U.K. AGENT WANTED

We need a professional agent to sell high quality system software products for RSX-11.

Write to Box No. 1115 Computer Weekly, Dorset House Stamford St., London, SE1 9LU

Computers Bought and Sold

E O B LIMITED

Tel: 0763-44777 Telex: 837763

KODE VIP AND IBM 029

PRINTING PUNCHES. Competitive rental contracts. Telephone: BILLERICAY (02774) 53881 ...

FOR SALE

3 Denco Metal Compressors Mark 4 Air Conditioning Units, complete with pipes, cables, condensers, etc.

100% MORTGAGES ...

HEXAGON computer services

BUSINESS SYSTEMS, SOFTWARE PACKAGES, FACILITIES MANAGEMENT, RECRUITMENT ADVERTISING, CONTRACT STAFF SUPPORT, COMPUTER SECURITY, BUSINESS SYSTEMS

HEXAGON HOUSE 145 WARDOUR ST LONDON W1V 3TB 01-439 3671

IBM 129,029 PRINTING CARD PUNCHES

SORTER - REPRODUCERS - INTERPRETERS

★ EX STOCK ★ NEW/FULLY REFURBISHED ★ FULL WARRANTY ★ VARIOUS CODE OPTIONS

TEL. BASILDON (0268) 710292

WEBSTER D/P SERVICES LTD.

NEW/USED DP EQUIPMENT BUY OR SELL THROUGH W.D.P.

NEW DE LUXE 80 COLUMN HAND PUNCHES (EX-STOCK)

01-464 9011 TELEX 896559 WEBSTER D/P SERVICES LTD 65 WIDMORE ROAD, BROMLEY KENT BR1 3AA

See us at Compec '80 on Stand No. 7110 at Olympia, on November 4, 5 & 6

RING 01-439 6481 for

TEMPORARY STAFF — Effectie Gravis provides staff at all levels to cover a wide range of assignments.

- HOLIDAY COVER ● COVER DURING SICKNESS ● PHASING OUT OLD HARDWARE ● SITE RE-LOCATION ● INTRODUCING NEW HARDWARE ● PEAK LOAD COVER

OPERATORS, TECHNICAL SUPPORT, DATA PREPARATION STAFF, JCL/MACRO WRITERS, SYSTEMS DEVELOPMENT, MANAGEMENT, FACILITIES MANAGEMENT

PERMANENT STAFF — Our permanent recruitment section can assist you with vacancies at all levels.

- DATA PREPARATION ● MANAGEMENT ● OPERATORS ● TECHNICAL SUPPORT ● DATA CONTROL ● PROGRAMMERS ● SYSTEM-ANALYSTS ● TRAINEES

RECRUITMENT ADVERTISING: COPYWRITING, FILE SEARCH.

Top professionals in an established company

EFFECTIA GRAVIS

COMPUTER PERSONNEL CONSULTANTS, National House, 66 Wardour Street, London W1V 3HP. Tel 01-439 6481. 24 Hour Answering Service.

WANTED

IBM 1255 Cheque Reader/Sorter on purchase or rental terms for HM Customs and Excise.

Details to John White, CCTA Procurement Branch. Telephone 0603 60181 extension 366 or 265.

CHILTERN ELECTRONICS

LSI-11 RT11 System as new with:
- PSU & 8 Quad slot backplane
- Processor with EIS/FIS
- Disk controller
- 2.5 Mb RK05 compatible exchangeable cartridge disk plus 2.5Mb Fixed Disk.

Complete working system Only £2,750

Also available — new DEC AAV11 4 channel D/A for LSI-11 Cost £680. Our price £420

Ring Nigel Gunn on 0494 714483

DEC and DATA GENERAL

Buy, Sell or Trade. Call Alastair Dods 01-464 0942 Thomas Business Systems, Ltd.

SURPLUS HARDWARE

THIS WEEK'S SPECIALS While stocks last

FREE LS1 11/1 With every backplane and Terminal Device purchased

Full range of **DIGITAL SOFTWARE** with huge discounts

20% DISCOUNT on LS1 11/2 stockad modules H92 81 Series Backplane

TWINTAPE 58 portable or rackmounted ex. stock

TELEVIDEO 920 Smart V.D.U. ex. stock

MIDLECTRON

Midlectron Limited, Midlectron House, Nottingham Road, Belper, Derby DE5 1JQ.

Our menu is satisfying a lot of appetites

FOR SALE

PDP 8/L Minicomputer, 8K memory extension, TU60 Dual Cassette Drive and TA08 interface, all fitted in rack cabinet, plus free standing ASR-33 TTY. Complete with full set of manuals, 15 certified cassettes and over 100 Programs, with 40 Dec originals, including Focal, PAL III, Macro Assembler, Floating Point and Fortran Compiler and operating Systems. £690 + VAT. Carriage to be arranged. G.W.M. Limited. 093334207

ONE NEXOS C TEXT WORD PROCESSOR

with printer and approx. 70 discs. Surplus to requirements. Transferable maintenance contract.

£2,500 o.n.o.

Can be seen working by appointment Phone: Mr. Miller on 01-589 1114

Nelson Computer Services Ltd.

NEW/REFURBISHED & SECOND USER EQUIPMENT

IBM 3741/3742 Key Stations

IBM 029 & 129 Printing Punches

UNIVAC 1701 & 1710 Printing Punch Verifiers

All with maintenance

FORMS HANDLING Bursters Decollators Guillotines, Shredders

New and Refurbished

ALSO Hand Punches, Printers VDU Desks, Data Storage

St. Johns Court Rawtenstall Lancashire BB4 7PA Phone 07062 29125 (5 lines)

BUY - SELL - LEASE - RENT - MAINTAIN

KUNHARDT GmbH

Germany's largest secondhand computer dealer, buys and sells computers of all brands, especially: IBM, DEC, OLIVETTI, PHILIPS

KUNHARDT GmbH P.O. Box 1605 Neue Rommelshauser Strasse 2 D-7050 Waiblingen Tel: 07151-58038 Tlx. 07-245 877

ELECTRONIC BROKERS LTD

TERMINALS — RECONDITIONED FULLY GUARANTEED

DEC — LARGE STOCKS OF SURPLUS AND USED EQUIPMENT

VDU PRICES SHATTERED

£199 £299 £399

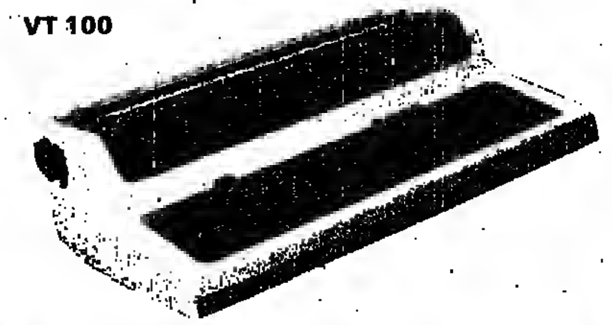
WE SELL WE BUY

Electronic Brokers Ltd., 61/65 Kings Cross Road, London WC1X 9LN. Tel 01-278 3461. Telex 298694

COMMERCIAL DATA

we have digital Terminals (WITH FULL ON-SITE WARRANTY/FREE DEL.)

from £650 + V.A.T.



CDL COMMERCIAL DATA LTD. DOWNHAM ROAD, RAMSDEN HEATH, BILLERICAY, ESSEX TEL: 0268-710282 : TELEX: 99453

Appointments

THE NEWSPAPER COMPUTER PEOPLE RELY ON

Appointments

COMPUTER WEEKLY

MYRIAD

OPERATIONS ANALYST

S.W LONDON. START: £7000-£8000+

A major international organisation well known as the market leader in its field is currently consolidating its recent installation of dual 4Mb 2960 mainframes and now has a vacancy for an additional member of its Operations Support Team. This is an opportunity which will appeal to a person presently employed either as a Shift Leader or a Support Technician on a large 2900 system or in Technical/Operations Support of a 1900 GEORGE II (+) installation who wishes to be trained in VME/B techniques.

The person appointed will be able to offer a sound knowledge of 2900 SCL and utilities and/or GEORGE II JCL, macros and UDAS utilities. He/she will become involved in the support of the 2900 system and will be trained in IDMS techniques since the group is responsible for Database Administration in addition to the support of production systems, development and implementation. A person displaying 1900/2900 and database knowledge will command a salary not less than £8000. Applicants having database implementation knowledge will have a distinct advantage.

This is a NON-SHIFT position and one which offers excellent prospects for future career progression within one of the most sophisticated ICL 2900 installations in London. The successful candidate will be offered good conditions of employment, a generous commencing salary and can look forward to a rewarding future.

Ref: S1/2310/CW

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street, London EC4Y 1AA Telephone 01-353 0981 24 hours

SEND TO 30/40 STAMP) MYRIAD APPOINTMENTS LIMITED FREEPOST, LONDON EC4B 4AA
I am interested in Ref
Name
Address
Tel No. Evening
[324B]

MYRIAD

SYSTEMS ANALYSTS

CITY **c. £10000**

This is an ideal opportunity for Systems Analysts with around two years' or more experience to embark upon an interesting and challenging career move.

Our client offers a stimulating and highly professional environment using up-to-date hardware, and the successful applicants will be assigned to a range of projects awaiting development using real-time teleprocessing techniques.

If you have a good systems analysis background and the ability to communicate at all levels then this is your opportunity to make a significant contribution to the continuing success of an expanding computer department.

The company offers first-class conditions of employment together with an excellent starting salary, and will also consider Analyst/Programmers who wish to move into a full systems analysis role.

REF: E1/2310

REAL-TIME DEVELOPMENT PROGRAMMERS AND SENIOR PROGRAMMERS

MIDDLESEX **£7000-£9500**

The development of a nationwide communications network handling order processing/inventory control applications comprises the majority of our client's workload. The system forms a distributed network enabling customers to be serviced swiftly and efficiently and uses both DEC and IBM hardware.

Programmers and Senior Programmers are currently required to join the development team of this giant industrial enterprise.

Applicants should have a minimum of two years' commercial experience programming in COBOL and/or BASIC+.

The excellent salary package is enhanced by valuable fringe benefits making this not only a challenging but also a valuable career move.

REF: C1/2310

SYSTEMS ANALYSTS IBM 4300 NEW SYSTEMS DEVELOPMENT

NEAR HARROW, MIDDX. **TO £10K**

Only very occasionally does an opportunity arise to join a data processing department which is moving into new areas of its company's business to provide a professional and effective information service.

The successful and expanding business of our client offers such an opportunity for an ambitious commercially-minded analyst to play a key part in the development of new systems based upon an IBM 4300 mainframe.

The computer applications involved are stimulating in both the business and technical sense and therefore applicants will find that the potential for their own development is fully within their control.

The importance that the company places upon this appointment is reflected in the attractive commencing salary which will be offered to the successful candidate.

REF: NW1/2310

PROJECT RESPONSIBILITY — SYSTEMS ANALYST

HERTS. **c. £9500**

★ ON-LINE ★ DATABASE ★ NEW PROJECTS

A Systems Analyst, seeking project responsibility on a major business system, is now required to augment our client's new project development.

In order to integrate new design concepts with existing on-line applications, the successful applicant will need to possess a strong business awareness and the ability to understand and react to the request of senior management and enthusiastic user groups. The company is fully committed to the establishment of comprehensive databases, which presents an outstanding opportunity for an experienced Systems Analyst to take a leading role in the development of a major business system, and to extend their own abilities using up-to-date techniques.

Joining a professional business environment, where a powerful IBM mainframe is utilised, career prospects will only be limited by individual performance. A full range of benefits including Pension Scheme and Life Assurance accompany this opportunity.

REF: N1/2310

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street, London EC4Y 1AA Telephone 01-353 0981 24 hours

SEND TO 30/40 STAMP) MYRIAD APPOINTMENTS LIMITED FREEPOST, LONDON EC4B 4AA
I am interested in Ref
Name
Address
Tel No. Evening
[324B]

JBA

Design Consultants

London **c. £12,000**

A well established consultancy organisation is planning a major expansion in their Videotex systems activities and therefore have opportunities for Senior Consultants to join the team.
Candidates should ideally be graduates with a minimum of 10 years in computing – at least three of those spent recently in communications/packet switching. Knowledge of X25 a distinct advantage.
Ability to work with clients, analyse their requirements and relate these to Videotex as well as design new systems/networks of systems, or enhancements to existing systems, is essential.
Opportunities for international travel. **Contact: Jim Baker**

System Programming Manager

South London **£11,000**

A world famous electronics organisation require a Technical Manager to take responsibility of a team of system programmers supporting real-time and batch applications for the U.K. group.
Applicants should have at least 5 years experience in a technical IBM environment with sound knowledge of MVS, JES2 and TSO.
The personality and ability to play a leading role in the technical development of this installation is essential. **Contact: Janet Chilvers**

Analyst/Programmer

Central London **c. £10,000**

Our client, a highly professional systems consultancy operating at the quality end of the professional and commercial market, utilising the Data General range of minicomputers, is looking for staff to help with the continued expansion in this area and to maintain their present high standards.
Candidates must have at least 3 years experience in systems design where the speed of development is the major consideration. He/she will mainly be responsible for commercial systems, quotations and sales support, and the upgrading of existing products.
Successful applicants, in addition to their technical skills will have to be able to demonstrate a high degree of responsibility towards client requirements. For this they will be given every opportunity to progress within the Company, coupled with excellent salaries and usual fringe benefits. **Contact: David Hendry**

Systems Engineer – Communications

London **to £9,500 + car**

An international communications organisation is seeking an experienced person to join a team which is responsible for the total support and introduction of a range of mini and micro based communications systems. The Systems Engineer will be required to provide pre and post sales support, including fault finding on customer sites.
Applicants must have a good working knowledge of IBM COBOL, although consideration will be given to experienced candidates from other machine environments. The ability to give presentations and promote communications products is essential, while experience of an ASSEMBLER language would be an added advantage.
The position is based in South London but it will cover the whole of the Southern region. Naturally a car will be supplied and in addition the company offers a comprehensive benefits package. Salary will be negotiable according to experience.
Contact: Isobel Bruce

Analyst/Programmers

London **£9,000**

We have been retained by one of the leading consultancies to recruit young data processing professionals, to join their highly technical teams, working on a variety of systems including system audit and security. Every opportunity will be available to develop a career to a high standard, and each individual will be given responsibilities and promotion on merit and achievements.
To apply it is essential that a first class educational standard was attained, including a degree, preferably Computer Science or related subject with a good pass mark. Also to have at least one year in a commercial environment working with a development team involved in the development or enhancement of a major system, using one of the predominant high level languages, preferably in a large installation.
Contact: Janet Chilvers

Technical Authors

Beds. **to £8,500**

A leading manufacturer has a requirement to strengthen both its hardware and software technical writing teams in order to meet current deadlines.
Applicants should possess 2-3 years experience of writing technical manuals and leaflets covering possibly, operating systems, programming languages, machine code text, systems programming and engineering guides both peripheral and processor.
You will enjoy excellent working conditions in new offices plus a staff restaurant and other fringe benefits over and above the basic salary. **Contact: Brian Postles**

Computer Resources Manager

Croydon Area **c. £8,500**

We have been retained by a well-established electro-mechanical and electronic engineering company to recruit for them a Computer Resources Manager to manage the day to day running of their PDP11/34 site. The hardware is newly installed and initially will be implementing a Production Control package, although in the long term other applications will be reviewed.
The successful candidate will be required to take control of the general operation of the site and to co-ordinate with user departments and software manufacturers. Knowledge of DIBOL is preferable yet not essential, but a working knowledge of COBOL would be an acceptable alternative. Applicants would be expected to possess management skills required to liaise with senior managers and other departments.
Every opportunity will be offered to progress within the organisation, coupled with a good salary and fringe benefits. **Contact: David Hendry**

JAMES BAKER ASSOCIATES,
International Personnel Consultants,
32 Savile Row, London W1.
Tel: 01-439 9311.

IBM Computer Operators

up to £7500pa + shift allowance

Fluor (Great Britain) Limited is part of one of the world's most successful companies in the engineering and construction business, with particular emphasis on the energy field. We are at present embarking on an [illegible] programme which entails establishing a network throughout Europe. The first IBM 3031 using MVS [illegible] VTAM NCP (with RJE and interactive terminals) [illegible] will be installed in the London office at [illegible] 1981.

The Senior Operator must [illegible] IBM MVS/JES2 experience. We are also [illegible] candidates with less experience for the operator positions.

The rewards will be [illegible] on the ground floor of this major [illegible] competitive salary [illegible] the Company [illegible] the benefits associated with [illegible].

If you would enjoy the scope offered by these new positions, please contact Graham Meaden on 01-388 4222 Ext. 4210 or write to him at Fluor (Great Britain) Ltd., Fluor House, Euston Square, P.O. Box 309, London NW1 2DJ.

FLUOR | GREAT BRITAIN | LIMITED

TOOTING LONDON SW17

The South West Thames [illegible] Computer Centre, Springfield Hospital [illegible]

Computing [illegible] ICL 2956 hardware [illegible] which provides [illegible] to the figures.

A two-shift system [illegible] the quoted salaries [illegible] Other benefits include modern [illegible] excellent recreational facilities both on site and nearby.

SENIOR OPERATOR £6433 - £8207*

This position will [illegible] 18 months George 3 experience and [illegible] shift.

DATA CONTROL CLERK £5426 - £6433*

Trainee – £4072-£5182*

Applications are [illegible] knowledge of George 3 JCL, although [illegible] computer experience will be considered at Trainee level.

FILE LIBRARIAN (Days Only) £5361 - £6839

The person appointed will [illegible] control of all files (including the operating system) and the [illegible] accounting statistics.

Candidates should have [illegible] computing experience preferably in a medium-to-large George 3 installation.

* Includes shift allowance

For further details, phone John Wynton, or write to:
Modem Computer Services Limited,
Freepost, London WC2N 5BN

01-839 3351

MODEM

Data Processing Staff Consultants

BOX Nos.

Box number replies should be addressed to

Box No. ... c/o Computer Weekly, Dorset House, Stamford Street

---

PROGRAMMERS

London IBM Cobol/PL1/Mark IV

01-638 4200

---

alba

Aluminium Bahrain (ALBA) is the major aluminium producer in the Arabian Gulf. Established in 1971, the company now employs some 2000 local and expatriate staff. Current major expansion creates rewarding opportunities for:

Programmers COBOL

£ negotiable-upwards of £10,000 net of tax + substantial benefits BAHRAIN

to make a significant contribution within a 2 year contract to the company's established central computer department. Set up in 1974, and now employing some 30 staff, the department is involved in the development of on-line systems on an IBM 4331.
Candidates should have a minimum of 3 years' COBOL experience; C.I.C.S. knowledge would be an advantage. Program development will be on-line using I.C.C.F.
Salary, at present totally tax-free and freely transferable, will be negotiable in a five-figure range.
In addition, substantial benefits include: * 6 weeks' annual leave plus 12 days of Public Holidays * rent-free furnished air-conditioned bungalow * full recruitment and repatriation expenses * annual return air fares for employee and family * free education for children * free medical care.

Bahrain is a stable country with a liberal government. English is widely spoken and the company is experienced in the rapid and smooth entry of expatriate staff into the local community. Extensive sports and social facilities exist.

Please write with full details or telephone for an application form to: K.W. Rowe, Alba Smelter Services Limited, 22 Grosvenor Street, London W1X 9FE. Tel: 01-491 1451.

(3228)

Oh you will like to be beside the seaside.....

Not only for the strolls along the promenade the bands playing "Tiddly-om-pom-pom", but also because you will be working for one of Britain's most dynamic business systems manufacturers at our modern BRIGHTON complex.
Right now we need –
SYSTEMS PROGRAMMERS to test their skills and creativity in the development of Operating Systems, File Management Systems and executives for 8/16 bit microprocessors. A minimum of one year's ASSEMBLER experience required.
R & D ENGINEERS who are imaginative digital logic circuit designers with 1-2 years Z80, 80/85 experience to help develop communications processors, peripheral interfaces and microprocessor based systems.
SOFTWARE SUPPORT PROGRAMMERS with a flair for handling people and 1-2 years commercial background and experience in ASSEMBLER.
All employees at ABS Computers receive a comprehensive range of benefits associated with a major British Public Company in addition to their highly competitive salary.
Phone Hillary Moore at Woking (04862) 70518 to arrange an interview.

ABS COMPUTERS

MULTIBUS HOUSE, Station Approach, Woking, Surrey. (3233)

PORTSMOUTH POLYTECHNIC
Computing Centre

SENIOR PROGRAMMER

Post No. 772

The Computing Centre operates an ICL 2960 under VME/K and an ICL 2904 under MINIMAC for general college use and a PDP 11/40 for Computer Science students. Applicants should preferably be graduates and have substantial programming experience on a large mainframe computer.

Salary Scale:
SO2/PO1(2-6)
£7,287 to £8,328

Application form and further details are available from Staff Office, Portsmouth Polytechnic, Alexandra House, Museum Road, Portsmouth or by telephoning Portsmouth 27681, ext. 317 and returned by 7th November, 1980.

(3225)

Permanent vacancies in

SURREY NOW

Cobol/Assembler Programmers & Analysts

Salaries up to £9K

Tel. Sonia at

SYCOM
0296 32023

Tonka Toys

IBM SYSTEM/34
Henley-on-Thames

FRANCE IBM 5280 | BELGIUM IBM 5280 | GERMANY IBM 5280

EUROPEAN SYSTEM CONTROLLER

Remuneration Package £10,000

The TONKA EUROPE CORPORATION is transferring its European headquarters from Belgium to Henley-on-Thames. An IBM SYSTEM/34 in use in Belgium is to be transferred to Henley in Spring 1981, and links to IBM 5280 systems in France, Belgium and Germany established.
An independently-minded, experienced computer specialist is required to join the management team based at Henley, and to undertake the following
—Control of the System/34 in Belgium up to the time of its transfer
—Planning and execution of the transfer of the computer to Henley.
—Establishment of the IBM 5280 links in France, Belgium and Germany.
—Specification and development of further applications for Tonka.
—Management of system operations at Henley, and co-ordination of the use of IBM 5280s which will require some continental travel.

The job calls for a combination of organisational and technical abilities, and a substantial degree of self-motivation in a position of wide responsibility, reporting to the head of the European Corporation who will also be based in Henley.
Practical experience of the IBM System/34 will be an advantage, but the right person and level of competence will be of more importance.
Those who consider they have the necessary attributes, and are interested in the position are asked either to write, or telephone (at any time)

Mr. M. J. Seaton
WOODS & SEATON LIMITED
Wash Hill House, Wooburn Green, Buckinghamshire HP10 0JA
Telephone: Bourne End (06285) 28980

(3121)

PLAN YOUR CAREER WITH PRESCOT

ENGLAND, NEW ZEALAND SOUTH AFRICA & AUSTRALIA

Careful planning often makes the difference between the successful and the not so successful computer career. Prescot Computers understand this because we specialise in overseas computer recruitment and the selection for an overseas post requires extra care by Prescot, employer and employee. We use the same principles of care whether UK only or overseas employment is involved.
We always wish to interview PROGRAMMERS, SYSTEMS ANALYSTS, ANALYST PROGRAMMERS, CONSULTANTS AND SALESPEOPLE for a broad range of clients in England, Australia, New Zealand and South Africa. Salaries range from £4,000 to £16,000 p.a. If you are interested, why not telephone Chad Stolper on 01-434 2698/9 for an informal discussion.
Alternatively if you prefer write to him at:
PRESCOT COMPUTERS LIMITED
43 Conduit Street, London W1R 8FB

(81)

COBOL PROGRAMMER

£7,800

Experienced person for large international company W1.
Minimum 2 years' experience
Good knowledge of DOS and CICS.
Excellent promotional prospects.

MERROW EMPLOYMENT AGENCY
839 5095

3246

Real-Time Minicomputer Systems

S. Herts/N. London

Our client, a manufacturer of advanced, real-time mini-computer systems, is seeking additional experienced software programmers to join a software development group within their Engineering Department.

Software Team Leader

c. £9,000

You will have had proven experience of operating systems, compilers or utility software gained in a development, or support role. You will be able to demonstrate the ability to lead a team of 3 or 4 programmers in the technical evaluation of software produced by independent vendors and of integrating such packages into the Company's product range.

Software Programmer

You will work as a member of a team evaluating the software produced by a number of independent vendors. You will have programming experience at assembler level and a knowledge of basic software packages. A position in this team provides an excellent opportunity to learn and broaden your experience in the job.

The above positions provide exciting opportunities for involvement in a broad range of software products. Good personal communications skills are required. The usual large company benefits apply, including relocation assistance where appropriate.

Apply in confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings Gt. Missenden (02406) 4705 or daytime as below.

3283

HR **Harvey Recruitment**
Executive and Computing Personnel Consultants
500 Chesham House, 150 Regent Street,
London W1R 5FA. Tel: 01-734 5351

MERSEYSIDE

COMPUTER CONSULTANCY

★ Systems Analysts ★
★ Analyst/Programmers ★ Senior Programmers

Salaries to £8,450

★ Programmers ★

Salaries to £7,600

— Many interesting and rewarding client situations now exist in the North West
— Specific experience requirements include TPS, RSX11M, CICS, Ventek, VME8
— More senior positions could be available for suitable applicants.

For further details contact MIKE WITTY on 051-227 3371.

Fraser Williams & Company Ltd.
Port of Liverpool Building, Pier Head, Liverpool L3 1BY

All positions carry the additional benefits:
★ Good promotion prospects ★ Significant expense allowances ★ Personal profit share ★ Opportunities to broaden experience ★ Change of foreign assignments if desired.

FraserWilliams Computer Consultants

LONDON · ST. ALBANS · LIVERPOOL · LEEDS · MANCHESTER · POYNTON · BIRMINGHAM · BRISTOL · SHEFFIELD · GLASGOW · TORONTO · NEW JERSEY

(3260)

BOX Nos.

Box number replies should be addressed to

Box No. ...
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 9LU

NEW COMPANY

FIELD SERVICE ENGINEERS

Start £7,500 + Car + O/T + Benefits

A major American mini manufacturer is launching a field service organisation from scratch to support its activities in London and Home Counties. This could be your opportunity to gain experience on a wide range of prestige minis and their applications, whilst enjoying the prospects only offered by a new venture like this.
Start at £7,500 + car + overtime + benefits. If you are a service/customer engineer with good academic background computer experience, live in one of the above locations then take a big stride forward to an exciting career by calling today
Cons. Ref 2738

AB EXECUTIVE 01-549 6441

IRISH DAIRY BOARD – DUBLIN

DATA PROCESSING SPECIALISTS

The Irish Dairy Board is undertaking a major online/real time programme to ensure that its systems are geared to meet the rapidly changing requirements of the national dairy export organisation. The Board plans to install in the immediate future, an IBM 4341 computer operating under VM/370 and OS/VSI. Extensive use will be made of CMS and CICS. Vacancies now exist for the following positions at our Head Office in Dublin:

SYSTEMS DEVELOPMENT MANAGER

To develop and co-ordinate a variety of projects. He/she will consult with all levels of management, evaluate user requirements and ensure that projects are implemented to the user's satisfaction.

The successful candidate, reporting to the Data Processing Manager, should have a minimum of five years systems experience, a strong systems design, implementation and analysis background, and will have previously been responsible for project management.

Experience in implementing online systems would be an advantage. It is desirable that the successful candidate will have a degree or professional qualifications.

ANALYST/PROGRAMMERS

Applications are invited from persons preferably with three to four years experience in programming and systems analysis employing online techniques in nearly all new developments. Ideally the successful candidate will be participating first hand in this expanding technology. Experience in online systems would be desirable.

PROGRAMMERS

Vacancies exist for programmers with at least eighteen months experience in COBOL. Familiarity with interactive program development, CICS and advance operating systems would be an advantage.

These positions offer exciting and challenging opportunities for high-calibre people who would like to progress their career in a modern computer environment.

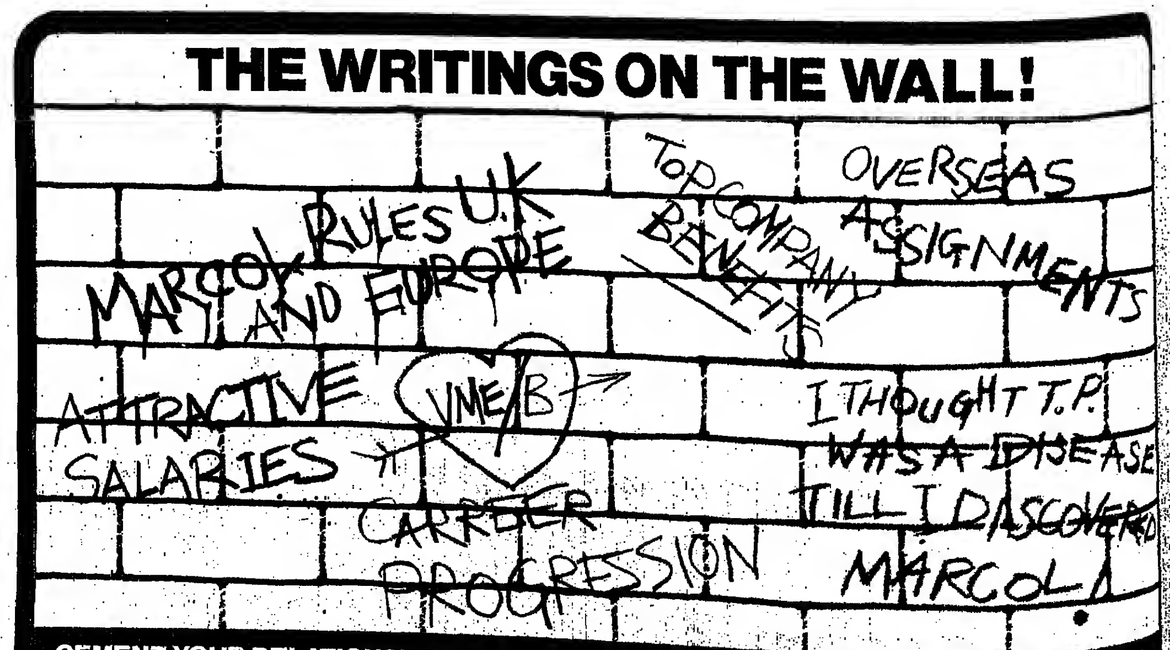
Attractive salaries will be offered.
Contributory Superannuation Scheme.

Please write enclosing full curriculum vitae, before Friday, 7th November, 1980 to:

Personnel Executive,
An Bord Bainne Co-operative Limited,
Grattan House, Lower Mount Street,
Dublin 2.

IRISH DAIRY BOARD
AN BORD BAINNE

THE WRITINGS ON THE WALL!



CEMENT YOUR RELATIONSHIP WITH US!

ICL 2900 VME/B COBOL
System 4 experience.
IBM OS or DOS COBOL

EUROPE up to £18,000
UK up to £9,000

Phone now or write to:
Penny Bailey
Marcol Computer Services Ltd
60 Queen's Gardens, London W2
Tel: 01-402 9355 (24 hour service)

MARCOL

Total Computer Systems from Marcol

SR

MIDLANDS

EXPERIENCED COMPUTER PEOPLE to £10,000

Why not join a successful organisation with a 7-year history in an expanding industry? Our turnover grew by 51% this year!

We are looking for a limited number of Senior Programmers, Analyst Programmers and Software Specialists to join our teams working on IBM 370, 4300 and 303X as well as Burroughs and DEC systems.

Ideally we seek relevant experience, but we are happy to discuss career and training prospects with experienced computer staff, no matter what your background.

We are a Systems Company with an outstanding reputation. Our strength lies in our management and staff who are highly competent, friendly and enthusiastic. Conditions match the best available and include:

—6 monthly salary reviews
—8 monthly bonus
—Pension Scheme
—Free Life Insurance
—Sickness and Accident Scheme
—Motoring Allowance
—5 weeks' holiday
—Company Car Scheme for qualifying individuals

to discuss these opportunities please contact;
Mike Hessian. Ref. CW288

CPC

COMPUTER PERSONNEL CONSULTANTS
18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

(3284)

TASK FORCE

YORKS

OPS/ANALYSTS/JCL WRITERS IBM D/S 6 mths. + excellent rates
ANALYSTS/PRDGRAMMERS ASSEMBLER IBM DS 6 mths. + excellent rates

WALES

TECHNICAL SUPPORT ICL 1900 GIII 3-6 mths. excellent rates

MIDDLE EAST

ICL 1900	GII Software Prog. Comme. experience £500 p.w. + accom. + tax free
ICL 2900	IDMSX Software Programmers DDS 500 + IDMSX 200 exp. £600 p.w. + accom. + tax free
ICL 2900	IDMS Programmers + Chief Programmers £475-£600 p.w. + accom. + tax free
ICL 2900	VMB/B Operators + 1900 DME/GII Operators £400 p.w. + accom. + tax free
ICL 2900	Technical Support, Base, Dump Cracking, Comme Catalogue, Naw Kommfy, Kernel 5x32, 5x36. £450 p.w. + accom. + tax free.
ICL 1900/2900	Analyst/Programmers, Cobol/Fortran/Filetab. GII/DME. Jan. start. £450 p.w. + accom. + tax free

A.M. TASK FORCE LTD.

2 Southchurch Road
Southend-on-Sea.
Essex SS1 2NE

Tel. Southend-on-Sea
(0702) 615551/2
Telex: 995042
Talk to Lyn, John or Tony

44 Kingsway
Stoke-on-Trent
Staffordshire ST4 1JH

Tel: Stoke-on-Trent
(0782) 410217/8
Telex 367203
Talk to Jan, Paul, Dave or Derek

OUR REPUTATION TELLS ALL

(3237)

LONDON INTERVIEWS FOR POSITIONS IN CALIFORNIA

Help Design Our Next Generation of Computer Products

Advanced technology is the trademark of world renowned Silicon Valley, California offering a wealth of opportunities in both professional and personal life-style.

Four-Phase Systems, Inc. a $200 million company employing 3,700 people, is an industry leader in distributed data processing, office automation products, and related software and hardware systems. As part of our Headquarters' development team, you will assist in the design of our next generation of computer products, involving the design and implementation of leading edge computers with advanced multi-processor architecture

Our technical recruiting staff will be conducting interviews in London for positions in the following areas (interview travel expenses will be reimbursed):

Diagnostic Software Engineers
- On-Line and Remote Systems
- Service Processor Software
- Engineering Bring-Up Support
- Error Handling
- Operating System Interface

Advanced Operating Systems Development
- High Level Language Systems
- Operating Systems
- File and Data Base Systems
- Programming Tools, Producing Complete User Development Environment

Software Development
- Operating Systems
- Communications
- Special Systems
- Office Information Products
- Compiler Development
- Distributed Data Systems

Electronics Engineers
- High Performance Digital Logic
- Central Processing Units
- Large Memory Systems
- Sophisticated Micro-Designing and Micro-Programming

We offer excellent salaries and an attractive benefits package, including relocation to California, and the warm, relaxed lifestyle of the San Francisco Peninsula. We prefer candidates of single status, or married with no children. H-1 Visa assistance will be available for qualified candidates.

Interested candidates, please send resume in confidence to: Four-Phase Systems, c/o Nationwide Advertising Services, Dept. SQCW, Clifton House, Euston Road, London NW1 2RA England or call 01-388-6441 weekdays 1:00 pm to 5:00 pm.

Four-Phase Systems
The Distributed Processing Company

3274

WE'RE MOVING

NOTICE TO CLASSIFIED ADVERTISERS RE: CHANGE OF ADDRESS

With effect from November 7, 1980, COMPUTER WEEKLY will be moving to Sutton, Surrey. From this date, classified advertisers should send their material to the following address:

CLASSIFIED DEPARTMENT
COMPUTER WEEKLY
QUADRANT HOUSE
THE QUADRANT
SUTTON, SURREY, SM2 5AS

TELEPHONE: 01-661 0121
TELEX: 892084 BISPRS G

COMPUTER OPPORTUNITIES IN SCOTLAND

Quality and quantity abound north of the Border . . . .

by David Hicks

The future in Scotland is not grim, writes DAVID HICKS, of DML Services, Edinburgh. The quality of life, increasingly important to most people, should attract not just expatriates to posts north of the Border: Scotland has much to offer in terms of housing, environment and – not least – opportunities for those in DP not overly concerned with job titles.

THE current world and British recession is no less a worry to those involved at all levels in the DP profession than to anyone generally concerned with business and commerce or even the hard-pressed housewife. However, if we all took a negative and fatalistic attitude we might as well stop the world now and apply to become a Black Hole instead.

The computer industry has grown so much over the last quarter-century because it has, and still is, proving its value. Therefore, although the shop floor is being hit so badly at the moment, DP staff have been in a relatively secure position. Certainly some areas have been so badly affected that entire plants and businesses have closed but generally speaking DP departments are at least maintaining their staffing levels. Indeed, it is to their cost-effective computer departments that management teams must look to work towards turning the corner to renewed prosperity.

DP managers themselves are all too aware of this, but constantly frustrated by the lack of funds available or policy blocks on using the best methods available to find qualified staff.

The future in Scotland is not grim. Even manufacturing companies, feeling the pinch most, are expanding their DP departments; new related industries are still moving to the area, more prosperous companies are undergoing large expansion projects.

Attractions

The quality of life is becoming increasingly important, therefore more people, not just expatriates, should be looking at the great attractions offered north of the Border: wherever you live in Scotland you can be close to beautiful countryside: there are ample and widespread sporting opportunities; the people are friendly; housing is reasonably priced and companies realistic about help with relocation.

Scotland has held the reputation of offering lower salaries, a situation accepted by expatriates wanting to return home. Recently the gap has narrowed, though there still exists a time lapse before realisation dawns that the gap has widened once again.

Here is where the services of a good consultancy could be better utilised. Personally I believe that a DP agency or consultancy exists and operates for more reasons than to make money. Involvement and dependence upon a high technology profession means that we have a duty to fully understand that technology, to offer advice based on knowledge accumulated and to operate in a highly professional manner. This should include an absolute degree of confidentiality and a commitment to interview candidates before forwarding their details.

Trust

Agencies have two major commitments: towards clients and towards candidates. To fulfil a totally cost-effective function the consultant must be greatly trusted by a particular client, so that applicants forwarded are technically suitable, committed to moving and will reasonably fit into the atmosphere of the installation. Thus, although a client is obviously spending money, it should be felt that it is money well spent.

Similarly, applicants should be able to trust their consultancy. The initial interview has therefore to be totally thorough so that the client's time, the candidate's time and even that of the consultancy is not wasted. The candidate should know that he has agreed to his details being sent to each particular installation and be thoroughly informed as to the function of that installation and its DP department. This modus operandi obviously means a far smaller profit margin, but is a vital ingredient for a consultancy working in ethical standards and looking to their long-term relationship with clients and candidates alike.

As for the job situation in Scotland, the position remains to a great extent unchanged: there are still vacancies for experienced staff. Masses of trainees are waiting to obtain their first appointment, many of them under the false impression that they are already experienced. There is certainly room for the "sandwich course" concept to be extended and a greater degree of commercial applications to be introduced in the university courses.

Expertise

At the opposite end there are many senior candidates also waiting for suitable positions, though yet again there are few openings for them. There are exceptions to this, in that a handful of companies are now offering senior salaries with responsibilities to candidates who are not overperturbed about job titles.

In the middle of the sandwich are the people with one to five years' experience whose expertise is greatly required up here. So much for that Scottish companies have the admirable reputation of looking after their DP staff extremely well and providing first-class promotional prospects. As in most aspects of life there are repeating cycles of requirements in DP. In one year was a somewhat frustrating one for technical staff whereas this year the accent is on technical candidates is being sought after.

Overall, therefore, prospects in Scotland look good. There are opportunities for both commercial and technical staff with good career development and the freedom to enjoy a wide scope of life should offer. There are some agencies that are keen to put themselves out to help both client and candidate rather than make a fast buck for as little effort as possible. Such a service can form a third part of a viral triangle that will allow DP departments to point the way to a healthier future.

Hydro-Electric

OPPORTUNITIES IN SCOTLAND

ANALYSTS a PROGRAMMABERDEEN

Due to current expansion our client, the North of Scotland Hydro-Electric Board, require a number of D P. PROFESSIONALS to work in project teams on commercial applications

The modern, pleasant installation has new twin 2960 hardware, the conversion for which a complete Database has been introduced and new on-line systems being developed

Successful applicants will be working on a variety of interesting systems and have good promotional prospects This service provided by our client also means an extremely secure future, in a prosperous area where housing is not as costly as rumour would have it

SYSTEMS ANALYSTS £6,000-£9,000
Candidates should have a minimum of 18 months' commercial/business systems experience and be of degree standard or equivalent qualification.

PROGRAMMERS £6,000-£9,000
Candidates should have a minimum of 18 months practical COBOL experience and reasonable academic qualifications

Normal large company benefits include a generous relocation package

For further details and to arrange a location interview phone David Hicks on 031-226 5969, or write enclosing a full C.V. to: OML Computer Personnel Services, 11 Charlotte Square, Edinburgh EH2 4DR.

Please quote reference CP/130/E. (3281)

D M L

PROGRAMMERS ... ANALYSTS ... ANALYST/PROGRAMMERS ... SENIOR STAFF

Opportunities exist in Scotland NOW for good quality candidates in the above categories within a wide choice of area, application and installation.

LOCATIONS:
West Scotland – Glasgow – Central Scotland – Edinburgh – Borders – Tayside – Fife.

APPLICATIONS:
Commercial/manufacturing programming; technical programmers; commercial/manufacturing/business analysts; technical analyst/programmers; commercial analyst/programmers; software programmers; OP Managers; project leaders; sales/support; project managers.

BENEFITS:
Our clients are installations with secure futures and offering some or all the following benefits:

★ MORTGAGE SUBSIDIES ★ GENEROUS RELOCATION ASSISTANCE
★ GOOD CAREER PROSPECTS ★ HIGHLY COMPETITIVE SALARIES
★ NON-CONTRIBUTORY PENSIONS

For further detailed information to match your requirements and to arrange a location interview phone Iain Jannings on 031-226 5969 or write to: DML Computer Personnel Services, 11 Charlotte Square, Edinburgh EH2 4DR. (3281)

D M L

General Accident

OPERATIONS

SCOTLAND £5,800 to £8,000 + Benefits

Due to impressive expansion and the planned introduction of an IBM 3033 to add to their 3031 and 8100 processor, our clients require the following staff to add to their operations department:

SHIFT SUPERVISORS
Candidates should have a minimum of two years' experience on large IBM mainframes and at least two years as a shift leader OS, MVS, JES2, CMS/VM background required.

SENIOR OPERATORS
Candidates should have large IBM mainframe experience operating under OS or MVS and be capable of progressing within the company
(For the above two positions there are also posts for applicants with slightly less experience.)

SENIOR JOB CONTROLLER (TP)
Candidates should have a sound knowledge of CICS/NCP/VTAM and be capable of progressing into network management Good user-contact ability essential

SENIOR JOB CONTROLLER (Non TP)
Candidates should have a good knowledge of OS/MVS JCL and CMS/TSO.
The modern installation is situated in a picturesque riverside location in Perth, itself at the heart of an area high in sporting and recreational facilities This attractive Tayside town is close to both the Highlands and major Scottish cities

As one of the Top Five UK Insurance Groups our clients can offer excellent benefits which include:

★ REDUCED MORTGAGE FACILITY ★ FULL RELOCATION TO PERTH
★ NON-CONTRIBUTORY PENSION AND GROUP LIFE ASSURANCE
★ GOOD CAREER PROSPECTS AND A SECURE FUTURE

For further details of these outstanding opportunities, and to arrange a location interview, phone David Hicks on 031-226 5969 or write, enclosing curriculum vitae, to DML Computer Personnel Services, 11 Charlotte Square, Edinburgh EH2 4DR.

Please quote ref. CP/132/E.

D M L (3281)

SYSTEMS DEVELOPMENT SCOTLAND

On behalf of a number of clients in Scotland we would like to meet ambitious PROGRAMMERS and SYSTEMS ANALYSTS.

The range of opportunities, all in commercial installations, is wide and the vacancies are at all levels of experience.

Salaries are attractive and in the range

£6,000 to £10,000

Interested? Why not contact our resident consultant - Irene Webster - and arrange an informal chat.

Ivor Norton Management Services Ltd
Recruitment Consulting Division
Central Chambers, 11 Bothwell Street, Glasgow G2 6LY
Tel. 041-226-4912 3254

GREATER GLASGOW HEALTH BOARD

A. – SENIOR SYSTEMS DESIGNER
£7082-£8865 per annum

B – INTERMEDIATE SYSTEMS DESIGNER
£6256-£7586 per annum

C – TRAINEE COMPUTER PROGRAMMER
£3804-£4240 per annum
Increase to salary scales pending

Applications are invited from suitably qualified and experienced persons for the above posts in the Board's Computer Centre which is located at 27 Park Circus, Glasgow, G3.
Candidates for Post A require considerable experience in computing and proven ability to design and install complex systems. Programming experience is desirable while knowledge and experience of the National Health Service would be advantageous.
Candidates for Post B will be required to assist and whenever appropriate supervise the work of systems staff engaged on the creation and maintenance of an ICL 1903T based computer system for financial and administrative applications. They should also have around four years' relevant experience and a good educational background
Candidates for Post C should possess a degree or equivalent qualification in computing subjects and preferably have had some additional experience
Application forms and job descriptions may be obtained from the Personnel Office, Greater Glasgow Health Board, 351 Sauchiehall Street, Glasgow G2 3HT, to whom completed applications should be returned not later than Friday 14th November, 1980

PLEASE STATE CLEARLY FOR WHICH POST YOU WISH TO APPLY (3269)

SENIOR ANALYST PROGRAMMER

Playtex Limited, operating from their U.K. headquarters at Port Glasgow, manufacture a wide range of branded personal and family products for the U.K. and European markets.

The O.P. function require an additional Senior Analyst/Programmer who will be part of a small team providing OP support to all areas of the company. Some European travel may be involved.

The current equipment consists of an IBM System 3/150 with 128K for batch processing and a System 34 for on-line processing with local and remote terminals. Future plans include the installation of an IBM System 38 for which the database design work is underway.

Applicants should have a minimum of two years' experience using RPG-11 coupled with a knowledge of IBM System 3 and 34, preferably in a commercial environment.

Applications in writing to:

J. H. Boyle –
Industrial Relations Manager
PLAYTEX LIMITED
Industrial Estate
Port Glasgow (3275)

playtex LIMITED

A PROFESSIONAL RECRUITMENT SERVICE TO CLIENTS AND CANDIDATES
Vacancies in Scotland England and abroad
Free advice on how to find computer staff
DML COMPUTER PERSONNEL SERVICES
11 CHARLOTTE SQUARE
EDINBURGH EH2 4DR
031-226 5974. TELEX: 727330 (S)

FOR CLIENTS AND APPLICANTS IN U.K. AND OVERSEAS
Alex Daly
COMPUTER STAFF APPOINTMENTS
134 St. Vincent St., Glasgow
041-221 4166/9

BOX Nos.
Box number replies should be addressed to
Box No.
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 9LU

SOUTH YORKSHIRE POLICE (SHEFFIELD)
WANTED FOR INTERVIEW
SENIOR SYSTEMS ANALYST
Grade SO1/2 £6883 to £7728 per annum — pay award pending

South Yorkshire Police seek a suitably qualified Systems Analyst to work with police offices engaged on the development and implementation of computer systems based at Police Headquarters in Shalfield the post offers a wide range of activities in advisory and system design roles in connection with police operated systems, a current project being the implementation of an information system on Data General equipment. Liaison with the computer staff of the South Yorkshire County Treasurer's Department will also be required in relation to police applications on the County Computer installation, currently an ICL 1904S.
The person selected will have programming experience, preferably with mini computers, and experience with Data General hardware will be advantageous, as well some knowledge of computer applications in a police environment
Application forms are available from the Personnel Department, South Yorkshire Police Headquarters, Snig Hill, Sheffield S3 8LY. Telephone 78522, Extension 3380 (during normal weekday office hours) quoting post reference SSO
Completed application forms should be returned by 17 November, 1980. (3241)

ASSISTANT TO THE DATA PROCESSING MANAGER

An Assistant is required to the Data Processing Manager of an ICL 2904 installation with EOS80 and 7502 System. Experience of systems work and/or programming is essential.

Applications which will be treated in confidence should be addressed to the Personnel Manager, Diamond H Controls Ltd., Vulcan Road North, Norwich NR6 6AH.
(3269)

UNIVERSITY OF LIVERPOOL
COMPUTER LABORATORY
PROGRAMMER/ ANALYST (LIBRARY)

to join small group concerned with the development and implementation of computerised systems for the University Library, primarily on a large ICL 1900 computer. Experience of administrative or commercial systems, particularly with use of ICL COBOL and IDMS database, an advantage. A degree is normally required for this post.

Salary within range £5505-£9248 p.a. (under review).

Closing date for receipt of applications, 14 November, 1980

Application forms may be obtained from The Registrar, The University, PO Box 147, Liverpool L69 3BX. Quote Ref RV/SB9/CW. 3267

COMPUTER STAFF
£7,500-£11,000 p.a.
Software or hardware programmers and/or analysts, technical/scientific.
Ring: 0494 35294
Galaxy Agy (3280)

WE INVITE YOU TO EXAMINE YOUR REASONS FOR JOINING A WORLD LEADER IN OIL

DATA COMMUNICATIONS SPECIALIST. ABERDEEN.

Below are 14 questions to which you can answer Yes or No. A glance will tell you that this Quiz is not over difficult or to be taken too seriously. But we suggest that if you are interested in the career opportunity we set out in this page you might like to complete the Quiz and return it to us with your C.V. and in so doing, tell us a little more about yourself.

	YES	NO		YES	NO
Do you hold a Compular Science Degree			Occidental has an on-shore facility at Nigg Bay		
Have you ever worked in Telecommunications			The first North Sea Crude came ashore in 1975		
Do you believe you are an effective group worker			Occidental is a consortie of three companies		
Have you worked for more than two years in Date Processing			Aberdeen is 1½ hours flying time from London		
Are you, in general, an optimistic person			Aberdeen is less than 60 road miles from Scotland's finest ski slopes		
Do you enjoy travel			Aberdeen City possesses some of the finest housing in Scotland.		
Occidental Oil started North Sea Oil exploration in 1970					
Occidental's second North Sea Platform is called Clayton					

Currently we have a vacancy for the above position, and seek a specialist of the very highest order.
The person we seek will have special knowledge of data communications and practice, and will have worked for at least two years in telecommunications, with the Post Office, communications vendor or as a communications user.
With us, you would specialise in network and terminal hardware problem identification and resolution, and would be our first specialist in this field.

ADDITIONAL RESPONSIBILITIES would include
*Arranging maintenance
*Analysing traffic flow and specifying network operating standards
*Co-operating with technical personnel and implementing installation of modems, multiplexors, data lines and terminal hardware.
Opportunity for career development is excellent as this position is the training ground for Operations Supervisor at Oxy Aberdeen.

THE RIGHT PACKAGE FOR YOU
Oxy appreciate that the successful candidate may well have to re-locate and we are particularly attentive to personal needs vis-a-vis travelling and housing.
We provide every possible assistance in this respect, as well as offering a more than competitive salary, and there is an attractive Oxy package covering leave, sickness pay and pension scheme.

Write to:
Mr. R. Grant,
Personnel Officer,
Occidental Petroleum (Caledonia) Ltd.,
127 Causewayend,
Aberdeen, AB2 3TP

OXY

PROFIT FROM OUR PROGRESS (3279)

Growing interests for professional scope

It may possibly come as a surprise to you to know that Rank Xerox is still developing. Since the 1950's we have maintained our leading position in the field of sophisticated reprographic systems - a reputation which has generated considerable success and profitability. However, we fully realise the importance of keeping pace with the advances of high technology, confidently expanding our interests and, as a result, creating many new and exciting opportunities.

Communications Systems Specialist

We are fast becoming the industry leader in the explosive growth market-place of communications products, particularly word processors, and for this purpose we have an established Systems Business Division in Uxbridge. Here, you will provide vital technical support to our sales force and service engineers utilising your specialist knowledge to advise and train customers in the implementation and installation of communications applications. This will involve spending the majority of your time visiting customers throughout the UK in order to assess their requirements. Additionally, you will assist in setting up relevant training schemes within Rank Xerox, primarily aimed at an increased understanding of communications. With HNC Electronics or equivalent or, alternatively, considerable data communications experience, you will have the ideal background and, following intensive product training, will enjoy unrivalled scope and prospects. Salary up to £9,000 p.a. plus car.

Software Analyst

You will become fully involved in this expansion, joining our Software Support Group in Uxbridge, providing essential back up to our new range of soft loaded systems products specifically designed for the office of the future. With responsibilities incorporating the identification of customer requirements, the installation of software, and post sales liaison, the position offers both stimulation and challenge in return for your systems expertise. Your background will have a sound programming and analysis base, primarily in a commercial environment with a minimum of 3 years relevant experience. Knowledge of word processing will be an added advantage.
Salary £8,000+ p.a. plus car.

Becoming part of our future has a great deal to offer. In addition to salaries which are as competitive as our professional environment, we have a wide range of highly generous benefits which includes BUPA, free life assurance, pension scheme and excellent sports and social facilities.

So contact Sue Weddell NOW on Uxbridge 38230.

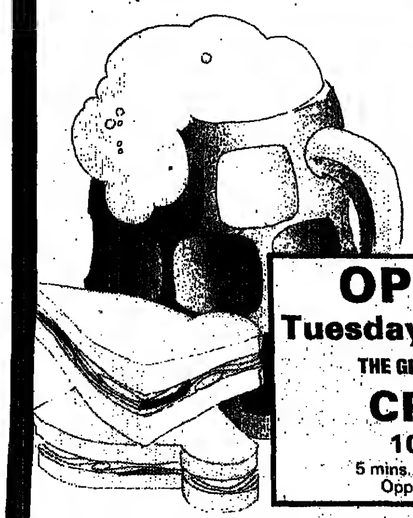
Or write to the Personnel Department, Rank Xerox (UK) Limited, Middlesex House, 4 Mercer Walk, Uxbridge, Middlesex.

3269

RANK XEROX

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611



Programmers (to £10K), Chief Programmer (to £11K)
Systems Designers (to £11K), Business Analysts (to £10K)
Systems Programmers (to £10½K)

Bring this with you

OPEN DAY
Tuesday, 28th October
THE GREYHOUND, PARK LANE
CROYDON
10 a.m. - 9 p.m.
5 mins. from East Croydon Station
Opposite The Fairfield Halls

This is not only the chance for a free pint . . . it's a genuine opportunity to discuss the challenging prospects for your future that have arisen within the management and data services division of this multi-million pound organisation, based in Croydon.

Currently an IBM 370 installation using COBOL and running under OOS/VS and VM with an extensive T.P. network they are upgrading their equipment to the new 4300 range in the new year. They offer the chance to develop the database and teleprocessing techniques that most discerning data processing specialists crave.

So do yourself a favour, have a pint on us, tell us about yourself, and we'll tell you all about a rewarding career and the superb benefits that go hand in hand with these very attractive salaries.

(Alternatively, telephone Diane Williamson on 637-9611 for further details)

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

3222J

MICRO COMPUTER DEVELOPMENT

West Midlands
Negotiable £10,000 + Car

An exciting career opportunity has arisen within an established mini and micro computer turnkey organisation.

The role includes the development of hardware and software for micro systems from components supplied from a highly reputable and established source. The company has detailed and accurate plans for the future of this venture and will involve the successful candidate in the setting up and progress of the organisation.

You should offer a background in mini/micro computer technology, including in-depth knowledge of DEC based hardware and software. A good technical grounding in DEC operating systems, languages, device interfaces and peripherals is required. Knowledge of commercial, graphical and technical applications would be useful. It is expected that you would have relavent academic qualifications and probably be earning a package around £10,000 to be at the level required.

Any experience in liaison with manufacturers and customers would be very valuable.

This position offers the opportunity to be involved from the ground floor, and to set up and establish a small team of professional staff. Salary will not be a limiting factor for the right candidate and general conditions such as pensions, sickness benefit, five weeks' holiday, BUPA, regular reviews and a company car are well above average.

For a strictly confidential discussion, please contact Mike Hession, Ref. CW288.

COMPUTER PERSONNEL CONSULTANTS
18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

CPC

3273B

Targa

TECHNICAL DESIGNERS — **c. £11,000**
A leading company in Systems Engineering require Experienced Technical people to join their team based either West London or North of London. The specific requirements for these positions are a minimum of 2 High Level Scientific Languages, i.e. Coral, Pascal, Fortran, RTL, etc., and experienced in wide areas of Telecommunications and knowledge of microprocessors. In return an excellent package with good company benefits is available. Ref: 3083

ANALYST/PROGS., EAST ANGLIA — **c. £8,500**
Our clients require Junior and Senior Analyst Programmers who have a minimum of 3 years' experience including at least 1 year as an Analyst. A knowledge of ICL COBOL is a specific requirement for these positions which are to develop systems with scientific data. A knowledge of ALGOL would be preferable although not necessary as full training will be given. The company operate a flexitime system and are offering a generous relocation package. Ref. 3125

BASIC + 2 PROGRAMMER—HERTS. — **To £6,000**
Up to 1 year's Basic + 2 exp. on PDP machines, preferably using RSTS or RSX gained in a Commercial Environment. Good promotion prospects. Ref. 3067

COBOL JUNIOR PROGRAMMERS—WILTSHIRE — **£5,500**
2 vacancies exist for Jnr/Progs with 12 months' exp. preferably gained on HP 3000 using MPE in a commercial site. Relocation expenses paid. Ref. 3120

OEC/POP SHIFT LEADER—BERKS. — **£7,000**
3 years' exp. as a Shift Leader using TOPS 10 or RSTS. Promotion prospects for this days only position very good. Ref. 2433

UNIVAC OPERATOR NW LONDON — **c. £6,000**
12 months' experience of Univac 90/30 machines with knowledge of OS3/4 JCL. Ref. 2976

ICL 2905 OPERATOR—ESSEX — **c. £5,000**
12 months' experience of general operating. Applicants must live in Central Essex. Ref. 2884

TARGA COMPUTER SERVICES
46/47 LONDON WALL, LONDON EC2M 5TE

3284J

Senior Systems Development Staff

For a major financial institution with a reputation as a leader in the field of life assurance, pensions and investment planning. Due to continued expansion, a number of significant opportunities have arisen in the Company's head office located in an attractive part of the West of England.

Systems Consultants
to £12,750 + Car

To play a leading role in the definition and analysis of complex business problems and the formulation of efficient systems solutions. Ideally candidates will have had at least 5 years substantial large systems experience with a demonstrable record of successful implementation. Initiative, self-confidence and a combination of business flair and strong analytical abilities are prerequisites. Preferred age is under 35. Ref. G861/1

Business Systems Consultant
to £12,750 + Car

Acting as an adviser to senior management, the appointee will initiate and complete a wide range of high level assignments across the whole spectrum of Business Systems work and will assist with the longer term planning of the Company's Admin. System. Applicants should have considerable experience of conventional business systems techniques including O & M, Methods Study, CWM and equipment evaluation. A knowledge of 'office of the future' methodology and a degree or formal Business Studies or O & M qualification would be additional advantages. Preferred age is 27-36. Ref. G861/2

Systems Analysts
to £11,800

Developing advanced computer systems has always been a major factor in our client's success. Analysts with a flair for the business side of systems development, who are alert, self-motivated, and determined to build a worthwhile career will find the right sort of challenge. Strong analytical skills, drive and creativity are essential. Experience is less important than ability, but 2 years solid systems analysis experience is a minimum. Ref. G861/3

All appointments enjoy substantial fringe benefits including a non-contributory pension, free life cover, BUPA, a profit sharing scheme plus an excellent relocation package.

TO APPLY
Please send a CV or write or telephone for an application form to JOHN KITCHEN, Executive Selection Division at the address below quoting the appropriate reference. Applications are invited from either sex.

3237J

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866

BIS Applied Systems

£neg. PROGRAMMERS Herts
Minimum 2 yrs COBOL or ASSEMBLER experience on IBM mainframe.

To £9K SYSTEMS PROGRAMMER London
Min. 4 yrs. programming to include 2 yrs systems programming. Function is to generate, install and maintain system and teleprocessing software and other generalised program packages.

£8K ANALYST/PROGRAMMER London
At least 4 yrs. COBOL programming/analysis and systems design experience using any mainframe

Many more unadvertised positions

COMPUTECH SYSTEMS & PERSONNEL
168 Finchley Road, London, NW3

NEW COMPUTER DEVELOPMENT

PRESCRIPTION PRICING AUTHORITY
Newcastle upon Tyne

This Authority is to develop and introduce a computer system capable of processing and providing prescribing and costing information from 320 million N H S prescriptions submitted each year by more than 10,000 chemists and other contractors

Currently 2,000 staff are employed to process this work manually in 9 centres situated in Northern England The suitable candidate must be experienced in the design and implementation of computer systems.

SENIOR SYSTEMS DESIGNER/ PROGRAMMER (APPLICATIONS)

Salary Scale £8,017-£9,748 p.a.

The job entails controlling and supervising teams of Analysts/ Programmers involved in Systems Design program writing, testing and implementation. The candidate will be closely involved with the users clarifying existing manual procedures and in the design of computer systems.

Application form, job specification and further information available from

Personnel Division, Prescription Pricing Authority, Bridge House, 162 Pilgrim Street, Newcastle-upon-Tyne NE1 6SN. Tel: Newcastle 26371.
Closing date. 12th November, 1980.

(3268)

OCC Contracts Personnel

Systems Analysts to c £25,000
Senior Programmers + Accom., Transport, etc.

Systems Analysts & Programmers with commercial experience on IBM 370 hardware are required, including DOS/COBOL for the programming positions. Candidates, male or female, will ideally be graduates and 30+ years old. Long-term appointments available if preferred.

Compiler Designers to c 80,000 DM
Systems Architects + Benefits

Requirements definition and design of Compilers, Operating Systems, Database & Comms. software for a new range of Mini hardware. Excellent long-term career prospects in a stimulating and expanding environment.

URGENT: IMS Systems Progammer 100,000+ DM

For further details please contact ... (day/evening)
OCC Contracts Personnel
1 Shantonsway Park, Berkhamsted Herts HP4 3NS Ref. FL36

(3260)

Berkhamsted (04427) 2299

PROJECT LEADERS
HODDESDON — SUTTON — S.W. LONDON — C. LONDON **To £10,500**

Several positions are available for people with at least five years' systems analysis experience covering commercial and financial applications, able to lead teams of Analysts and Programmers.

CICS PROGRAMMERS
WATFORD — REDHILL — WEST END — HOUNSLOW — S.W. LONDON **£7,000-£10,000**

Five of our clients are seeking CICS Programmers with experience of COBOL, DOS/VS (DL/1 or PL/1 an asset). The positions are of varying seniority and applicants must have at least 18 months' experience

ANALYST/PROGRAMMERS
BRENTFORD — S.E. LONDON — S.W. LONDON — LEATHERHEAD **C. £8,000**

COBOL Programmers with at least 2 years programming experience and at least one of those years should have been as an Analyst/Programmer We also have many more positions with clients located in London and the Home Counties Please phone to find out about the areas of interest to you

PROGRAMMERS
HODDESDON — BERKHAMSTED — CATFORD **C. £7,500**

Urgently required — COBOL Programmers with at least 2-5 years' experience The Berkhamsted position would accept any language from people willing to learn COBOL.

WATFORD
Chief Programmer £9,750. Lead Programmer £8,500.
Senior Programmer £7,500. Programmers £6,300.
Experience required of COBOL with CICS, DOS/VS or DL/1.

AMES PERSONNEL

Please write with full details or phone for Application Form.

Employment Agency Suite 14, Dryden Chambers, 119 Oxford Street, London W1R 1PA Tel 01 434 1106

(3247)

METROPOLITAN BOROUGH OF
Rochdale
TREASURER'S DEPARTMENT

SYSTEMS ANALYST (2 posts)
AP/SO2 (£5973/£7722) (Ref. E200)

TECHNICAL SUPPORT PROGRAMMER
AP5/SO1 £5873/7077 (Ref. E201)

PROGRAMMER (3 Posts)
AP2/5 (£3880/£6381) (Ref. E202)

(Pay award pending for all posts. Salary related to experience)

Rochdale is currently implementing VME/K on a 2960 mainframe. New Systems are to be converted; older systems will be re-designed along with New Developments. To meet this ambitious programme the development staff is to be increased to a team of twenty.
For further information contact Mr. G. A. Martin, Rochdale 521100 Ext. 3313.

Application forms and further details are obtainable (by quoting appropriate reference number) from: The Chief Personnel Officer, PO Box 68, Municipal Offices, Smith Street, Rochdale OL16 1XO. (Tel. Rochdale 47474 Ext. 682) to be received not later than Monday, 10th November, 1980.

(3270)

UNIVERSITY OF LIVERPOOL
Institute of Child Health
Software Development

Applications are invited for the post of Research

ASSISTANT/SENIOR RESEARCH ASSISTANT/ RESEARCH ASSOCIATE

In the Institute of Child Health, Alder Hey Hospital. Applicants should be experienced programmers and will join a small research team developing microprocessor controlled systems in the field of clinical measurements. A knowledge of Assembler language is essential, experience with current MPU hardware would be an advantage.
The project is financed for a period of two years
The initial salary will be within the range £4785-£6085 per annum.

Applications, together with the names of three referees, should be received not later than 13th November, 1980, by The Registrar, The University, P.O. Box 147, Liverpool, L69 3BX, from whom further particulars may be obtained Quote Ref. RV/897/CW

(3268)

PROGRAMMER
for
NCR CRITERION

Glossy magazine publishers in W1 wish to recruit programmer with a minimum of 2 years' experience of NEAT/3 and/or COBOL.

Excellent working conditions in modern new offices close to Oxford Circus and Piccadilly.

Benefits include five weeks' holiday.

Please write giving full details of experience, present salary and availability to:

Beverlie Flower
The National Magazine Co Ltd
National Magazine House
72 Broadwick Street
London W1V 2BP

Sales Executives
London — Midlands
Bespoke and Package Systems

Are you a successful DP Sales Executive with flair and the maturity to handle the freedom to 'do it your way'?

Ideally you will have sold a wide variety of systems solutions to first-time users and you will have worked with a large multi-national manufacturer,

Basic salary is £10K and on-quote earnings are £16K, but our client envisages that the right calibre of professional candidate will earn at a rate of £20K within a year.

Sales Executives are required in London and the Midlands to sell bespoke and package software, either with or without hardware, in conjunction with major manufacturers. Our client has provided computer services to bluechip companies nationwide for over 10 years.

To find out more phone:
in LONDON
Geoff Richardson on.
01-240 2441
In BIRMINGHAM
Reg Heath on.
021-643 8501

Computer People Midlands
Alpha Tower
Birmingham B1 1TT
021-643 8501 VLI group
Recruiting for clients

(3236)

Newcastle upon Tyne
Network Development...

A major British company is in the early stages of establishing a major TP network serving subsidiary organisations throughout the UK.
A substantial data centre is already established and is expanding rapidly in terms of workload, personnel and long term demands for its services.
A large scale IBM system is installed and previous experience in a major IBM installation is required from candidates for the following positions. The company will negotiate excellent salaries in line with the indicators shown and generous relocation expenses.
Salaries will be reviewed within six months.
These vacancies are all within the technical support group and are as follows:

Network Supervisors

Candidates must have practical experience in the operation and support of a medium sized TP network. Experience should include network planning, scheduling, configuring, costing and general technical back-up.
These positions should appeal to young specialists, probably working within a team engaged on network support and development, but who now wish to assume more responsibility and become involved at an early stage with a growing installation.
(Reference CW/8088)

to £8,500

Network Operators

Within the support team there are also vacancies for Network Operators to assist in the development and support of the network.
These are first class opportunities for candidates to gain experience in a rapidly expanding situation where the commitment to TP is total.
Candidates could currently be Network Operators, but applications will also be welcomed from Shift Leaders or Senior Operators in an IBM installation supporting a network, who wish to specialise in this field.
(Reference CW/8089)

to £7,500

Systems Programmers

These are really outstanding opportunities for young systems programmers with a minimum of two years systems programming experience in a large IBM installation. Key software in use is MVS, CICS and DL/1. For one of the positions candidates must have significant experience in one or more of these areas. The second appointment requires in-depth experience of VTAM and NCP.
Appointments can be offered which will suit the level of experience of particular candidates and will also reflect an assessment of the individual's potential for development.
(Reference CW/8090)

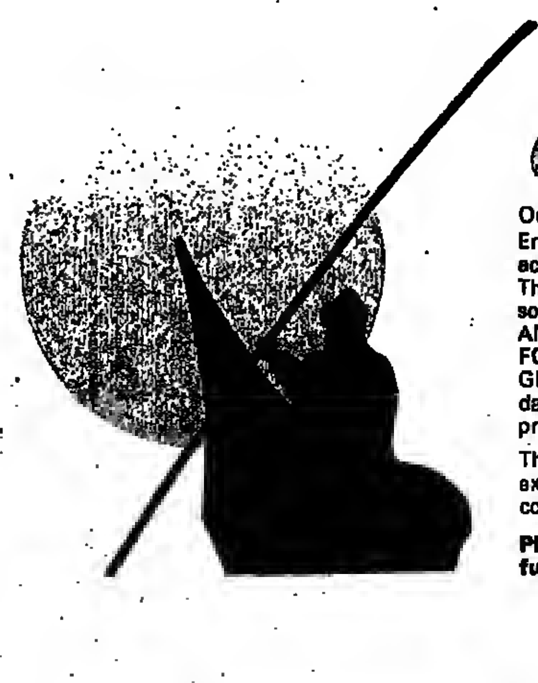
to £9,500

Interested candidates should contact Ivor Norton quoting the appropriate reference in writing or by telephone at the Harrogate Office in order to arrange a confidential discussion.

Ivor Norton Management Services Ltd RECRUITMENT CONSULTING DIVISION

LONDON	HARROGATE	GLASGOW
52, Shaftesbury Avenue, London W1V 7OE	P.O. Box 63, Copthall Tower House, Harrogate HG1 1TS	11 Bothwell Street, Glasgow G2 6LY
01 734 6862	Harrogate 68628	041 226 4911

24 HOUR ANSWERING SERVICE (0423)55311



An Announcement

Our client, one of the world's foremost oil companies, is consolidating its worldwide function of Petroleum Engineering and Exploration from its developed complex at Dhahran, Saudi Arabia. In support of these activities they are building one of the most advanced scientific/technical computer centres in the Middle East. The centre is due for completion by October 1981, and will consist of 4 3033's and some of the world's most sophisticated software. To assist in this massive program they urgently need to recruit SENIOR SYSTEMS ANALYSTS with between 3 to 10 years' experience with large IBM systems, and a background in PL/1 or FORTRAN to work on Capacity Planning and Analysis. There are also numerous opportunities for GEOPHYSICAL SYSTEMS ANALYSTS who are conversant with seismic processing techniques or geological data management systems, and PETROLEUM ENGINEERING SYSTEMS ANALYSTS who are familiar with production, reservoir, and drilling engineering technical concepts.

These senior and challenging opportunities are offered to men or women educated to degree level, who could expect a starting salary of up to £21,000 net plus a benefits package which rates amongst the most comprehensive and generous in the Middle East.

Please write or phone Peter Madams on 01-240 1466 (reversing charges) quoting PM/A67 for further details.

Computer People London VLI group 01-836 8411
VLI House 68-69 St.Martin's Lane, London WC2N 4JS *Recruiting for Clients*

(3229)

Computer Operations Professionals

STOP

Entry point to the most exciting computer operations environment in Europe

Start here for involvement with the European Space Agency — the organisation responsible for placing and controlling scientific, communications and other applications satellites for users throughout Europe.

We are in the process of final negotiations for a contract to operate the Agencies' computer systems at the following locations:
Noordwijk in Holland,
Darmstadt in West Germany,
Frascati in Italy
and the ESA Headquarters in Paris.

With negotiations nearly complete, we want to talk to operations staff who would be interested in taking part in what could be the opportunity of a lifetime. If you have experience on large scale computer systems, a professional attitude to computer operations and are interested in the most exciting computer operations environment in Europe, we would like to hear from you, especially if you feel you could fill one of the following positions:

CHIEF OPERATOR
SHIFT OPERATOR
SYSTEMS OPERATOR
PERIPHERALS OPERATOR
TAPE LIBRARIAN
KEY PUNCH OPERATOR

Activities to be covered include scientific and general data processing; data preparation and library services. Operations include real time support of launch operations and spacecraft control, operational support of current and future ESA satellites and running an on-line interface information retrieval service. The hardware currently in use includes C11-Honeywell Bull, ICL 2980's, ICL 4/72's, IBM 370, ITEL AS/5, Siemens 330's, Siemens 32/77's, Nova 830's and RC 3600.

As permanent employees of RCA you will enjoy excellent salary packages at the highest continental standards plus further career development opportunities for both at home and abroad within the RCA Organisation.

For an application form contact: Iestyn Williams, Staff Personnel Officer, on Sunbury-on-Thames 85511 (reverse charges) or write to him at RCA Service Division Limited, Windmill Road, Sunbury-on-Thames, Middlesex.

RCA

AT LAST, A REAL ALTERNATIVE. CAREERS WITH OLIVETTI COMPUTERS.

A career with an established data processing company with 29 offices throughout the United Kingdom.

Olivetti Computers.

Selling really impressive hardware. Fully compatible mainframes with support as it used to be.

Building a very special team of sales, systems engineering and full customer engineering support.

Is this the move you've really been waiting for? A real alternative.

A fully compatible career. The future starts here. With Olivetti Computers.

SALESMEN AND WOMEN.
SYSTEMS ENGINEERS.
HARDWARE AND SOFTWARE CUSTOMER ENGINEERS.

Call Olivetti Computers. Now. Mike McDonald on 01-377 8644. Or Chris Morgan on 01-629 8807.

olivetti Computers.
At last, a real alternative.
Olivetti Computers (UK), Ltd. 17/29 Sun Street, London EC2M 2PU.

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

NOTICE BOARD

Are you a successful salesman looking for more success?

Software Sales • London • £20K + CAR

Very rarely does a realistic opportunity arise for a successful Sales Executive which is tempting enough to make him move. We believe our client, a leading U.S.A. Systems company, has come up with just such an opportunity. With a well-established European sales support network in cities like London, Amsterdam, Paris and Geneve amongst others and a prestigious client base, they have penetrated even further into the IBM systems market. They are now looking to expand on their success by increasing their sales force in the U.K. If you have experience selling operetions based software, ideally to the IBM merket, salary, commissions and conditions are excellent with unlimited potential for an already successful aggressive professionel.

For more information contact Robin de Rouen on 01-637 9611.

Chief Programmer -

Croydon £11K+

FREE INS., SPORTS FACILITIES, L.V.s

If you have at least five years' COBOL/ASSEMBLER programming, and experience of RBM 370 under DOS/VS, CICS and VSAM . . . we need.

Large two-mainframe installation, developing database and teleprocessing systems and investigating integrated information techniques.

Interested?

Ring Diane Williamson on 01-637 9611

This is difficult...

If you're the sort of sales professional who can rise to, and master a challenge our client will guarantee you:

£13,700 + 2-litre car

They have a communications orientated small business systems product. Already highly successful in Europe and all set to penetrate the competitive U.K. market.

As for support you will have the full resources of an established name in the computer industry who will leave the creative selling up to you.

If you live East of London or in South Manchester, contact Tony McGrath on 01-637 9611.

Kawasaki PROGRAMMERS to £6½K

Kawasaki Motors, one of the leading motor-cycle manufacturers, is a company working in a young and exciting environment.

Programmers with 1 to 2 years' RPGII and/or COBOL experience can become part of their expanding data processing department. Database and on-line developments on the HP3000 mean involvement in challenging new projects for the successful applicant.

Hewlett Peckard experience is preferred but training will be given to the right candidate.

Salary to £6½K plus a merit bonus, pension scheme, life assurance and four weeks' holiday.

Please contact Diane Oubridge on 01-637 9611

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

Systems Programmers

HOME COUNTIES

MVS/VM/VS1/SVS

Requirement

extensive systems programming experience in one or more of

* mainframe vendor
* consultancy
* user

Opportunity

wide-ranging Systems Engineer role

* customer-based
* installation of advanced software
* SCP diagnosis and fix
* systems consultancy
* system cross - training

Environment

* large mainframe manufacturer
* rapid growth
* exceptional career development prospects
* big company benefits (including competitive relocation package where appropriate)

To discuss your career aspirations and how our opportunities may help you to meet them ring Mike Henderson, on 01-572 7383 or write to him at: Amdahl (UK) Ltd., Viking House, 29-31 Lampton Road, Hounslow, Middlesex.

3273

amdahl

Software Specialists

to meet exciting challenges in

Electronic Office Systems

Nottingham up to £11,000 p.a.

Electronic Office Information Systems must be one of the most exciting challenges in software and systems development.

Within the next decade, many of the accepted office systems will have been superseded by electronics technology.

Plessey, with very broad experience in communications, has a head start in this field. At Beeston, we are basing a new product range on a multi-microprocessor system.

The location offers considerable advantages in terms of moderately priced housing, attractive countryside and proximity to the City of Nottingham.

We want to talk to men and women with two or more years' experience of programming, using micro, mini or mainframe computers.

We are looking for Project Managers and Programmers in these areas:

Operating System Software

DEVICE DRIVERS – Daisy wheel printers, Winchester discs, magnetic tape, floppy discs.

DATA COMMUNICATION METHODS – Packet switching, asynchronous, synchronous, HDLC and other communication protocols.

FILE SYSTEMS – File access methods, file archiving, security, integrity.

MULTIPROCESSOR SUPPORT – Master/slave processor co-ordination, changeover methods, multiprocessor scheduling.

ON-LINE DIAGNOSTICS – CPU, memory and peripheral testing.

LANGUAGE SUPPORT – Compilers, interpreters, link-loaders.

Application Software

to work on word processing, message switching, teleprocessing terminal emulation, telephony support, commercial packages, electronic mail and filing systems.

Ring Peter Newman Chief Engineer – Office Systems, on (0602) 221157 or out of office hours on (0607) 72844. He'll give you the details.

Alternatively, send a brief c.v. or write/ring for an application form from Allan Youdell, Recruitment Officer, Plessey Communications and Data Systems Limited, Beeston, Nottingham NG9 1LA. Tel: (0602) 254831.

PLESSEY

3213

SYSTEMS ANALYST/ PROGRAMMER

Required by

Abingdon carpets limited

We have a vacancy for a person who has the following experience:

(a) at least two years' practical systems analysis experience
(b) programming experience in COBOL
(c) practical experience of implementing commercial systems
(d) experience of data preparation systems, mainframe operating systems and applications and, to a limited extent, personnel management.

Salary according to age and experience.

Apply in the first instance to: Jane Barclay at Abingdon (0235) 27515.

Abingdon Carpets Limited, 5 Nuffield Way, Abingdon, Oxon.

BRITISH OLIVETTI BCS 3030 COMPUTER OPERATOR

First-class experienced operator required for the above computer.

Wages according to qualifications and experience.

Please contact THE FINANCE DIRECTOR on 01-640 9311

to discuss the job

Successful applicants will receive first-class remuneration and will work with a go-ahead, progressive company.

Please bring your c.v. with you to the interview

MAGIBOARDS LTD.
42 Wates Way
Willow Lane Industrial Estate

RN-SSK DIESEL-ELECTRIC SUBMARINE WEAPON SYSTEM

NEW PROJECT : NEW OPPORTUNITIES

SOFTWARE DESIGN ENGINEERS

The advent of a new class of submarine for the Royal Navy brings with it fresh opportunities for a system approach to the proposed weapon fit.

As a significant part of a multi-million pound contract Vickers Shipbuilding Group Ltd. Weapons Department have been designated CO-ORDINATION AND SYSTEM DESIGN AUTHORITY with responsibility for overall system design development and performance amongst other tasks.

As part of the newly-formed team SOFTWARE ENGINEERS are required with particular responsibilities in a REAL TIME MICROPROCESSOR - based system for:-

1. Specification, design and implementation of software modules for submarine weapon guidance and target analysis systems using high and low level language.
2. Analysis of Mathematical and Statistical methods particularly those concerned with target tracking (e.g. digital filtering techniques).
3. Assessment of overall system considerations concerned with the procurement of a total ship weapon system.

Experience of submarine operations would be desirable.

QUALIFICATIONS AND EXPERIENCE

Honours degree or equivalent in maths or applied science plus at least 3 years experience of Software design for Military and Industrial real-time systems.

The positions are open to both men and women.

Please write with details of age, qualifications and experience to:

Mr J. Richardson, Personnel Officer, Vickers Shipbuilding Group Limited, Barrow Shipbuilding Works, PO Box No. 6, Barrow-in-Furness, Cumbria. LA14X 1AB

Vickers Shipbuilding Group Limited

A member company of British Shipbuilders

(3218)

Sales Executive

South Africa £30K

South Africa has one of the highest living standards in the world. Nixdorf Computer, in the midst of a burgeoning economic explosion, has a top opportunity for the right executive.

You will be experienced in computer sales (ideally with some knowledge of Nixdorf's 8870 and 820) and have a good track record. You will know systems, be self-motivated and capable of negotiating at very senior levels.

Interviews will be conducted in the U.K. and the successful applicant will receive assisted family passage, removal expenses and medical cover etc.

Executive basic salary, fringe benefits and commission incentives will enable you to enjoy a low tax, high sunshine life — style, at a level probably very different from your contemporaries.

Please write, including your curriculum vitae to:
John Fletcher, Sales Manager,
Nixdorf Computer (Pty) Ltd,
P O Box 7911
Johannesburg
South Africa

NIXDORF COMPUTER

3286

UNIVERSITY OF BIRMINGHAM

MICROPROCESSOR SYSTEMS LABORATORY

COMPUTER OFFICER

Applications are invited for the post of Computer Officer within the University's newly established Microprocessor Systems Laboratory. Preference will be given to applicants who are professionally qualified, have relevant experience and are familiar with the software and hardware of a range of microprocessor systems.

Salary will be on the scale £4,795-£6,095-£9,595 (under review), plus superannuation.

Further particulars are available from Mr R W Bushaway, Computer Centre, University of Birmingham, P O Box 363, Birmingham B15 2TT, to whom applications (three copies) including a full curriculum vitae and names (three referees should be sent by Friday, 14th November, 1980.

Please quote reference 6WX6.

(3219)

SENIOR COMPUTING ASSISTANT

Required in Department of Economics, University of Reading. Some knowledge of economics and/or statistics desirable. Salary in scale £3,339-£4,416 p.a.

Apply for further particulars to Personnel Officer, University of Reading, Whiteknights, Reading RG6 2AH. (Ref. T.E. 49A).

(3220)

KENT COUNTY COUNCIL

For sale by tender

GENERAL AUTOMATION MINITOM COMPUTER

about 3 years old, comprising:
Hardware: 16/330 Processor, 32K of 16 bit word length core random access memory, 10 Mb disc, 180 character per second matrix printer.
Software: Basic, Commercial Fortran, Fortran.

Further details from Contracts Officer, Kent County Supplies Centre, The Air Station, West Malling, Maidstone, Kent.

(3278)

UNIVERSITY OF NOTTINGHAM

CHIEF PROGRAMMER

Required for the Administrative Data Processing Unit of the University of Nottingham which is replacing an ICL 1901A with an ME29 with three Disc Drives and two Magnetic Tape Units to support Workstations and Video Terminals for batch and on-line processing. The appointee will be responsible for two other programmers, program writing and maintenance and will assist in the design of new systems. Five years' experience in Commerce or University data processing required. COBOL is essential and PLAN would be an advantage.

The appointment will be made in the salary range £4,795-£9,595 per annum.

Forms of application, returnable not later than 10th November, 1980, from the Staff Appointments Officer, University of Nottingham, University Park, Nottingham NG7 2RD. Please quote Ref. No. 787.

(3211)

COVENTRY (LANCHESTER) POLYTECHNIC COMPUTER CENTRE

TEAM LEADER

£7287-£7722 or £7987-£8067

Applicants should have a degree or equivalent in either Mathematics, Computer Science or some relevant discipline, and four years' experience of programming in a scientific, technological or commercial field. Arrangements for research towards a higher degree can be made.

PROGRAMMER/ADVISER

£5268-£5581

Applicants should have a degree or equivalent in either Mathematics, Computer Science or other relevant discipline. Experience of programming in a scientific, technological or commercial field would be an advantage.

ALL SALARIES QUOTED ABOVE ARE CURRENTLY UNDER REVIEW.

Details from Assistant Personnel Officer, Coventry (Lanchester) Polytechnic, Priory Street, Coventry, CV1 5FB (telephone a large self-addressed envelope). Closing date: November 7, 1980. (3223)

Recruitment LOGISTIX In Informatics

IMS & DL-1 Professionals

Netherlands: Salary to £20K

A Dutch Systems and Software Consultancy based in Amsterdam has current requirements for **Systems and Applications Programmers/Designers.** Suitable Systems respondents must offer current or very recent IBM Programming experience with either DL-1 or IMS internals. The nature of the work will include the generation and implementation of new Software releases, liaison with in-house users will form an essential part of the job function. Applications Programmers will be concerned with the design, coding and implementation of Systems in the areas of:— (a) sales and trend forecasting; (b) spare parts and inventory control and (c) budgetary assessment and forward planning. These positions represent an outstanding opportunity for both contract and permanent personnel to enhance their IBM skills. **Ref: L/43/A**

Senior Commercial Programmers

City: Pkg. to £12K

The high salaries offered by this City-based institution reflect the importance placed on the acquisition of top quality personnel to assist in a major up-grade of their IBM installation. At least three, and preferably **five, years' COBOL programming experience in an on-line environment is essential.** Applicants who are, additionally, able to offer a knowledge of Assembler and familiarity with **CICS** internals will be especially welcome. The company's expanding development programme ensures that successful candidates will not only be exposed to "state-of-the-art" technology but will also be given the opportunity for rapid career advancement. **Ref: L/43/B**

Microprocessor Engineers

Switzerland: Salaries to £15.5K (equivalent)

We have an exclusive assignment to recruit several Software Development Engineers to join the Company's permanent staff based in German speaking Switzerland. Emphasis will be placed on technical achievement and in-depth industrial/practical experience. A B.Sc. or M.Sc. Degree in Electronics, Electrical Engineering or Computer Sciences is a desirable asset. Additionally, all candidates must offer a minimum of four years' microprocessor software development. All respondents should be fully familiar with Motorola 6800, Intel 8085/6 or Zilog Z80 hardware and software. It is preferable to offer some German language ability for social/cultural reasons as much as for the working environment. Of prime importance is a real enthusiasm to relocate to Switzerland for a minimum period of 2 years. Assistance will be given in relocation including the cost of removal of all personal effects and the provision of temporary accommodation. Our clients offer an above-average salary together with an unrivalled range of ancillary fringe benefits. Initial screening interviews will take place in London. **Ref: L/43/C**

Mini/Micro Assembler

E. Anglia: Salary to £10K

The MicroSystem Division of one of Europe's leading systems suppliers has a number of vacancies for Programmers with one to five years' Assembler experience on any leading mini or micro computer. An academic qualification in either Computer Science or Electrical Engineering is advantageous but relevant industrial experience is equally welcome. Although particular applications knowledge is not a limiting factor familiarity with on-line, real-time techniques is essential. **Ref: L/43/D**

S/W Designers and Engineers

W. Country: Salary to £11.5K

One of Europe's renowned communications companies with a well established and expanding Communications Development Group urgently requires dedicated real-time professionals for its "software workshop". Currently you should be employed as a Software or Development Programmer/Engineer and have 1-3 years' mini-computer or microprocessor Assembler experience. Some positions will require active and regular pre- and post-sales support, whilst others demand software and firmware development skills. Involvement with PDP11, VAX 11/780, System X orientated processors or Intel 8085/6 or Zilog Z-80 micros will be particularly advantageous. Candidates with a background in real-time military or defence applications are equally encouraged to apply. Interviews will be arranged on the Company's premises in this reasonably priced location. **Ref: L/43/E**

Systems & Programming Consultants

Central & West London: Salary to £14K

An internationally renowned Systems and Programming Consultancy is currently seeking dynamic, ambitious professionals to join its specialist project teams. These positions will appeal to candidates who enjoy developing systems and solving related business problems. Suitable candidates will have a minimum of three years' programming experience on any commercial machine and of particular interest will be those who have a knowledge of COBOL and Assembler. You should have designed at least one complete system from feasibility to implementation and those who have experience of project leading, customer liaison or management will of course be considered for more senior positions. **Ref: L/43/F**

Real-Time Applications

Surrey/Berks: Salary to £11K

A leading Total Systems Supplier has an urgent requirement for Analyst/Programmers and Project Leaders to join either its Customer Support or Software Development teams. Analyst/Programmers should possess at least 2 years' Assembler, Basic+ or COBOL programming experience gained on any leading mini or micro-computer. Additionally, successful candidates will be expected to offer at least 12 months' analysis of either scientific or commercial systems. Project Leaders should have a similar background supplemented by actual or potential management abilities. Location is unlikely to be a limiting factor as the Company is well served by road and rail facilities. **Ref: L/43/G**

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063 LOGISTIX **Telex: 28800**

هكذا عند الأصل

ARCHITECT'S DEPARTMENT

COMPUTER APPLICATIONS OFFICER

Salary to maximum £7722 (Pay award pending)

The successful candidate will be required to monitor and be conversant with computer developments and applications together with researching and advising on the new technology available which may be pertinent to the work of Architects, Quantity Surveyors and Engineers. In addition there will be a responsibility for supervising two Coders for the development and efficient running of existing computer programmes on the Council's main-frame ICL 2900 series computer in connection with the preparation of Bills of Quantities and the processing of the Office Job Costing System.

The successful candidate should therefore have experience with computer techniques, ideally in the building industry, and preferably be able to write simple programmes dealing with technical subjects. Commencing salary dependent upon age, qualifications and experience.

Application form, returnable by 7 November, from the County Architect, Springfield, Maidstone Kent.

(3277)

KENT COUNTY COUNCIL

SENIOR ANALYST PROGRAMMER

Playtex Limited, operating from their U.K. headquarters at Port Glasgow, manufacture a wide range of branded personal and family products for the U.K. and European markets.

The D.P. function requires an additional Senior Analyst/Programmer who will be part of a small team providing D.P. support to all areas of the company. Some European travel may be involved.

The current equipment consists of an IBM System 3/15D with 128K for batch processing and a System 34 for on-line processing with local and remote terminals. Future plans include the installation of an IBM System 38 for which the database design work is underway.

Applicants should have a minimum of two years' experience using RPG-11 coupled with a knowledge of IBM System 3 and 34, preferably in a commercial environment.

Applications in writing to:

J. H. Boyle
Industrial Relations Manager
PLAYTEX LIMITED
Industrial Estate
Port Glasgow

(3271)

playtex LIMITED

CALMA

INTERACTIVE GRAPHIC SYSTEMS
A division of United Computing Systems Inc.

Is an American-based company specialising in the production of computer systems for design applications. These applications cover integrated circuits, printed circuit boards, mapping and mechanical design. We are growing rapidly and have recently opened a new European customer support facility located in Kingston, Surrey. To support the expansion, we require the following staff:

1) **SENIOR HARDWARE TECHNICAL SUPPORT ENGINEERS**
Applicants should possess several years' experience as computer field service engineers. Experience in minicomputers or plotting equipment would be particularly relevant. c. £9,800 + car.

2) **HARDWARE REPAIR CENTRE TECHNICIANS**
Although previous computer experience would be desirable, applicants possessing a sound practical and theoretical grasp of electronics would be acceptable, as full training will be provided. c. £7,500

3) **DIAGNOSTICS PROGRAMMER**
This position is likely to suit either a very experienced Technical Support Engineer, possessing an aptitude for programming, or a Systems Programmer with a keen interest in hardware.
The work will involve writing and control of all types of diagnostics, and provision of technical support in situations where the exact nature of a problem requires definition. c. £10,000 + car.

4) **HARDWARE TRAINING INSTRUCTOR**
Required to set up a training department from scratch. Successful applicant is likely to be already employed in this capacity, and have extensive computer experience. Should be a good communicator and capable of planning training for a diverse range of products. c. £9,500.

Conditions of employment will reflect the high grade of people being sought and will be very competitive

PLEASE CONTACT. CALMA COMPANY, NEVILLE HOUSE, 85 EDEN STREET, KINGSTON-UPON-THAMES, SURREY

(3285)

Programming Team Leaders

with DEC experience; up to £8000

After sixteen years of consistent and profitable growth, Hoskyns has broadened into one of the largest computer systems and service companies in the U.K. Hoskyns Systems Development is a market leader in the development and implementation of application systems for the Financial, Distribution and Manufacturing industries.

Our minicomputer business is growing fast, and we now need more senior programming staff with the ability to manage projects and help support our growing customer base.

Specifically, we are looking for programmers with team leading and minicomputer system design experience, preferably with knowledge of DEC's PDP II series and BASIC, to work in London, Birmingham or Manchester.

If you are interested in these positions please apply to Tony Winslade, Hoskyns Systems Development Limited, 145-157 St. John Street, London EC1V 4QJ.
Telephone: 01-251 4581.

hoskyns

(3231)

EDP SYSTEMS ORGANISER/ANALYST

We are a highly successful company manufacturing precision engineered products for a world-wide market.

We currently use an IBM System 34 with 9 terminals, a processor of 128K and 128 MB disk capacity.

Planned upgrades will take this to 256K and 256 MB during 1981, and an IBM System 38 is currently under consideration. Existing applications cover financial and production systems with the emphasis on future developments being in the production areas.

IBM MAAPICS is being studied with a view to it's use in production and inventory control applications.

The successful applicant will have had considerable experience in industry to include commercial, financial and production functions and have had at least 4 years EDP experience.

A knowledge of IBM System 34 or IBM System 38 would be preferred.

A competitive salary will be offered together with the benefits associated with a progressive company.

Substantial relocation assistance will also be provided where necessary to this pleasant rural area where housing is favourably priced.

Write for an application form or telephone our Recruitment Officer, Mr. S. Murphy on Grantham (0478) 5577.

(3244)

British Manufacture and Research Company Ltd.
Springfield Road, GRANTHAM, Lincolnshire, NG31 7JB
A member of the Oerlikon Buhrle Group

COMPUTER WEEKLY CLASSIFIED

01 261 8028/8097/8019

the newspaper computer people rely on

Senior Programmer

£7362-£8823 inclusive (award pending)

You will be responsible to the Project Leader for the programming required by the team, and for supervising a small group of programmers. You should have at least 3 years' COBOL programming experience, and be able to motivate and control staff. Knowledge of George 3 and/or VME/B an advantage. (Structured programming and on-line programme development techniques are used.) We operate a 9 megabyte ICL 2972 under VME/B and an ICL 2960 under George 3 DME to support our expanding computer network and development plans based on a central VME/B service. We offer a 35-hour week with flexitime, 29 days' annual leave (plus 10 statutory/extra days), season ticket scheme and contributory pension scheme. Further details from Nick Wright (01-874 6464, ext. 2351

Application forms from Director of Finance, Town Hall, London SW18 2PU (01-874 6464, ext. 350/378). Closes 11 November.

Wandsworth

Over £10,000

This is what we expect to pay for a Shift Leader with drive, enthusiasm and proven managerial experience to control a shift of 9 highly efficient operating staff. In addition a high degree of IBM technical knowledge of operating is required.

This vacancy has arisen because of the internal promotion of one of our Shift Leaders to the Technical Support Section.

Our operating teams work to very high standards and you will be required to maintain and enhance these in a dynamic environment.

Currently LOLA has a 6 megabyte IBM 370/158AP running under MVS JES2 supporting large IMS TP, TSO and APL networks. An additional processor is currently undergoing acceptance tests on site to enhance the existing services.

Our requirements for this post are a minimum of 6 years' appropriate experience with at least two years' in a senior supervisory capacity. With slightly less than this you could be considered for the post of Deputy Shift Leader.

Further information and application form from:
Peter Anthony, Chief Operator, LOLA (London On-Line Authorities), Tower Point North, Sydney Road Enfield, Middlesex EN2 6UE.
Tel: 01-366 6611 (Ext. 266)

LOLA

ANALYST/PROGRAMMERS
London IBM Cobol/PL1/Mark IV

Tel: Roger Barnes on 01-628 4200
486 Cophall Avenue, EC2R 7DA

UCA

Systems Analyst & Snr. Systems Analyst

Essex/Herts. Border — £8,000 to £10,000

Is your career needing a lift? Come to where brand new development work is the order of the day! One of the world's largest industrial leaders has a dual Honeywell system operating in a real-time on-line mode, and requires first-rate systems people. A wide choice of application areas include accountancy, personnel, production control (MAPICS on System 34), warehousing control and a complex distribution reporting system. Really excellent perks include five weeks' holiday, free BUPA, subsidised canteen, first-rate S&S club and generous relocation expenses. CW43/1. Michael.

CW43/1.

Senior Systems Analyst

Reigate — £8,500 to £10,000

If you have a manufacturing applications systems background please give us a ring. A very profitable client of ours is urgently looking for the right person to implement new systems. Here is the chance for a more Junior Analyst/Programmer to move into pure systems work. There are the usual large company perks including an excellent S&S club and a proper system of promotion. CW43/2. Colston.

Insure Your Future in Analysis

City — £10,000

A major insurance company is expanding its present on-line Honeywell installation and investigating brand-new financial management information systems. You could be a major contributor to their new plans. Excellent perks include annual bonus, free B.U.P.A., free life assurance and 50p L.V.s per day. CW 43/3. Michael.

Senior Systems Analyst

Richmond/City — To £11,000

Another major insurance company with two locations is anxious to recruit an Analyst with mini or maxi computer experience. Their installation includes both IBM and two types of minicomputer to cut your teeth on. A multiplicity of new and enhanced commercial on-line systems needs your attention, so apply now. They work flexitime and have other perks including an annual bonus and non-CPS. CW43/4. Michael.

Micro Programmers/Designers

London/Home Counties — £7,000 to £10,500 + Car

Stand up all those with INTEL 8080 (or ZILOG 80) micro based equipment programming or design experience. Now is your chance to use your undoubted skills to great advantage. A number of systems houses and similar manufacturing companies in S.W. LONDON, W. LONDON & HERTFORDSHIRE are expanding their resources and require your type of experience. Two of our clients offer European travel and company cars. CW43/5. Tricia.

Communications Engineers

London based — £9,000 to £12,000

Have you the sort of experience that covers in depth one or more of the following: FILE TRANSFER PROTOCOL, PACKET SWITCHING, NETWORK ANALYSIS, FILE TRANSFER, SYSTEM X, etc. If you have two years or more communications knowledge then this American computer engineering company will be very interested in you for brand new project work. Possibly some training in America. CW43/8. Michael.

Cobol Programmers — Where Are You?

London & Home Counties — £6,000 to £9,000

If you are looking for a secure, rewarding future and have 1½ yrs. + experience, telephone us now for the very latest in COBOL vacancies in all manner of installations. Locations are BEDS., BRIGHTON, BUCKS., CITY, CHESHUNT, DAGENHAM, EDGWARE, HARROW, HARLOW, HAYWARDS HEATH, HIGH WYCOMBE, KINGSTON, LEATHERHEAD, N. LONDON, S.W. LONDON, W. LONDON, MAIDENHEAD, STANMORE, SURBITON & WELWYN GARDEN CITY. CW43/7. Tricia.

Operators

City — To £5,800

A well-known insurance company requires computer operators with 1 yr. + experience on IBM 370 with DOS/POWER/CICS. They will shortly be updating to the new IBM range. There is a 3-shift system. Perks include subs cant., 4 weeks' hols. and free BUPA. CW43/8. Tricia.

Contract Analyst/Programmers Wanted

To £450 p.w.

H'WELL	L66 TDS IDS	SURREY	6MTHS
IBM	SYS PROG CICS COBOL	S. LONDON	3MTHS
IBM	PL1 TSO IMS CICS	OXON	3MTHS
IBM	CICS DL/1 DESIGNERS	MANCHESTER	3MTHS
ICL	2900 COBOL	W. LONDON	3MTHS
IBM	COBOL DOS	W. AFRICA	1YR
IBM	3033 IMS SYS PROG	SWEDEN	6MTHS
ICL	2903 COBOL FRENCH SPEAKING	FRANCE	3MTHS

Ring Irene for details

UCA Recruitment Consultants
Universal Computer Associates Limited
Data Express House,
Prospect Place, London W4 3BR
01-995 3883 (01-958 6136 Evenings)

(3265)

SMR
Sales & Marketing Recruiters Ltd
Victory House, 99 Regent Street, London W1R 7HB

SALES EXECUTIVES

Now you've seen this week's selling jobs come and talk to us about a sales career.

Sales and Marketing Services is unique in its ability to provide facilities for Sales Training; Market Research and Psychological Analysis as well as the Recruitment of sales and sales support personnel.

We have the skills to provide careers guidance for sales and marketing personnel as well as having access to all the major computer organisations. Thus we are ideally equipped to find the right jobs with the best companies.

Come and speak with us soon.

TRADER

Tel: 01-734 9776

TRAINING, ASSESSMENT, RESEARCH, RECRUITMENT

3209

Over £10,000

This is what we expect to pay for a Shift Leader with drive, enthusiasm and proven managerial experience to control a shift of 9 highly efficient operating staff. In addition a high degree of IBM technical knowledge of operating is required.

This vacancy has arisen because of the internal promotion of one of our Shift Leaders to the Technical Support Section.

Our operating teams work to very high standards and you will be required to maintain and enhance these in a dynamic environment.

Currently LOLA has a 6 megabyte IBM 370/158AP running under MVS JES2 supporting large IMS TP, TSO and APL networks. An additional processor is currently undergoing acceptance tests on site to enhance the existing services.

Our requirements for this post are a minimum of 8 years' appropriate experience with at least two years' in a senior supervisory capacity. With slightly less than this you could be considered for the post of Deputy Shift Leader.

Further information and application form from:

Peter Anthony, Chief Operator, LOLA (London On-Line Authorities), Tower Point North, Sydney Road Enfield, Middlesex EN2 6UE.
Tel: 01-366 6611 (Ext. 266)

LOLA

(3252)

WILTSHIRE COLLEGES
CHIPPENHAM TECHNICAL COLLEGE
Required from 1st January, 1981.

LECTURER II in COMPUTING AND MATHEMATICS

A qualified graduate is sought to teach a wide range of courses including O.C.E. 'A' level, T.E.C. and B.E.C. A candidate with suitable experience might be appointed as leader of this section.

Apply immediately by letter with full details of your career, qualifications and interests, together with the names and addresses of two referees.

Interviews will be held at the end of the month.

Details from Clerk to Governors, Chippenham Technical College, Cocklebury Road, Chippenham, Wilts. SN15 3QR.

(3242)

ANALYSTS, PROGRAMMERS OPERATORS—MAINFRAME & VRC

with 9 months + on-site experience.
Interesting Senior and Junior positions.
Salaries to £12K
Contact the specialists on 353 6646
SYSTEM OPERATOR SERVICES
4 Ludgate Circus, London, EC4

(3219)

THE SALES BIT

Fair or unfair dismissal: Points to watch

LAST week I wrote about the rights of the employee during the period of notice. This week I shall continue with the dismissal process itself.

An employee who has been continuously employed for a period of more than one year has the right not to be unfairly dismissed by his employer. If he is dismissed in a manner which he believes to be unfair, he has the right to put his case before an industrial tribunal. This does not apply in cases where the employer is the wife or husband of the employee, where the employee has reached retirement age before the date the termination comes into effect, or where the employee is contracted to work overseas.

Once a case of disputed dismissal has come before an industrial tribunal the onus is upon the employee to prove that he was actually dismissed. Clearly, it is to the advantage of the employer to convince the tribunal that the employee actually resigned. However, if dismissal is proven or acknowledged by the employer, the burden of proof that such dismissal was not unfair lies with the employer.

The Employment Protection Act specifies five areas in which dismissal is acceptable, and unless the employer can state a principal reason for dismissal which falls into one of these categories, it is certain that a pronouncement of Unfair Dismissal will be made.

The permissible reasons for dismissal are:

1. The capability or qualifications of the employee for performing the work he was employed to do. This includes sickness.
2. The conduct and general behaviour of the employee.
3. Redundancy.
4. A legal restriction which makes continued employment impossible.
5. Some other substantial reason which justifies the act of dismissal.

The final category is rather broad, to say the least of it, but this is intended to embrace such situations as personality conflicts among employees, setting up or working for a competing business and the completion of a fixed-term contract of employment.

Having shown that the reason for dismissal falls within these five categories, the employer must then go on to convince the tribunal that the dismissal was fair and reasonable in the circumstances. The basic consideration is whether or not the punishment fits the crime.

There are no hard and fast rules for this kind of judgment as each case is unique and has to be considered on its own merits. However, a number of guiding principles have been developed. The most important are:

- Employees should not normally be dismissed for a first offence, even if company rules state that employees are liable to instant dismissal for such an offence. A conviction of crime is not necessarily a good reason for dismissal.
- A full inquiry should be made into all the relevant facts before dismissal is decided upon.
- Employers can only rely on facts they know to be true at the time of dismissal to justify their action. Facts which come to light at a later date are ignored by tribunals.
- The employer does not need to prove categorically that the reason for dismissal is an absolute fact; reasonable belief is sufficient.
- In a borderline case where the decision to dismiss or not could have gone either way, management must have the last word. Tribunals should only step in and declare the dismissal to be unfair if they decide that no reasonable management would have dismissed the employee in the circumstances.

TRADER

Puzzle Answer

SHOT lengths of 125 and 150 metres will enable the course to be played as follows: 3×150−125, 1×150+125, 4×125−150, 3×125−150, 1×150+2×125, 2×150+125, 150, 2×150, 2×125.

CW Prize Crossword 9

C	H	I	L	T	E	R	N	S	■	P	I	P	I	T
O	■	N	■	A	■	U	■	O	■	A	■	A	■	R
C	R	A	C	K	S	M	A	N	■	V	I	R	T	U
K	■	M	■	E	■	M	■	G	■	I	■	K	■	E
■	C	O	M	I	T	Y	■	B	A	L	L	A	S	T
B	■	R	■	N	■	■	■	I	■	I	■	■	■	O
R	E	A	D	■	T	H	E	R	I	O	T	A	C	T
E	■	T	■	D	■	O	■	D	■	N	■	N	■	Y
A	T	O	N	E	S	L	A	S	T	■	G	A	S	P
K	■	■	■	F	■	D	■	■	■	B	■	T	■	E
C	A	S	E	L	A	W	■	T	R	E	V	O	R	■
O	■	L	■	A	■	A	■	A	■	L	■	M	■	T
V	A	U	N	T	■	T	E	M	P	O	R	I	S	E
E	■	M	■	E	■	E	■	I	■	N	■	S	■	N
R	O	P	E	D	■	R	E	L	E	G	A	T	E	D

WINNER of Computer Weekly's Prize Crossword No 9 is Stephen Collins, scientific officer with the National Physical Laboratory, who wins £10.

The two runners-up, who each win £5, are John Waine, of Geest Computer Services, Birmingham, and F. R. Oliver, of the Dept of Economics, Exeter University.

مكتبة الأسد

COMPUTER WEEKLY

OCTOBER 30, 1980

RECRUITMENT & EDUCATION SUPPLEMENT

the most informative publication of its kind in the UK

In spite of rising unemployment the computer industry continues in its demand for a regular supply of qualified computer people. As the market expands, so to does the need for new skills and abilities. Although more and more training facilities are available, the chronic shortage of manpower remains, causing a major problem for all companies involved with computers.

Our annual Computer Weekly recruitment and education supplement, especially planned to coincide with and be available at Compec '80 — Britain's biggest computer exhibition — will be packed full of valuable information covering the whole spectrum of the computer job market. Editorial contribution will be substantial, appealing to data processing professionals, as well as the next generation of young people who will be required to take up the challenge and share in the achievements of the next decade and beyond.

This years supplement will be published on October 30 and distributed in the normal way to all Computer Weekly readers. Copies will also be available to visitors from the Computer Weekly stand at Compec. Last year, some 34,745 visitors attended the exhibition.

The supplement is a unique publication, being the only newspaper of its kind produced in the U.K. dealing specifically with the subject of careers and job opportunities for DP personnel: *The combination of the supplement's extensive editorial support, the large circulation, and Computer Weekly's standing in the industry, means this supplement is a must for recruitment advertisers.*

Computer Weekly has the largest circulation in the specialist computer press (91,656 ABC July-Dec 1979). This has increased continually over the years to reflect the ever growing number of personnel in the computer industry. Additionally, and equally important, the newspaper has the highest number of individually requested copies of any weekly computer publication.

For further details regarding the supplement and the special Compec *free* computerised recruitment service, contact your nearest Computer Weekly Classified Office: London: 01-261 8028/8019/8174/8097. Manchester: 061-872 8861. Birmingham: 021-356 4838.

Published to coincide with and be available at

COMPEC'80

Britain's biggest computer exhibition. Grand Hall, Olympia, London November 4-6 1980.

COMPUTER WEEKLY

**Special Compec Computerised Recruitment Service*
Free to all advertisers in this years supplement

FRANCE FRANCE

Informatica

SYSTEMS AND NETWORKS SUPPORT

We require

SYSTEMS PROGRAMMERS

for our customer support group in Paris. If you have at least 3 years' experience in generating and maintaining software on any of the following systems we would be interested in working with you. A basic knowledge of French is desirable.

IBM 370, 303x, 40xx
CIIHB 66 and 64
DEC PDP/11

SOFTWARE DEVELOPMENT

A SYSTEMS PROGRAMMER

with CIIHB66 experience. DMIV useful. French not essential.

APPLICATIONS

15 ANALYST/ PROGRAMMERS

Minimum one year's experience with the ability to speak French. We are very interested if you have any one of the following:

IBM assembler	DBOMP
CICS	DL/1
IMS	TOTAL
CIIHB66,64	IDS, TDS
PRIME	UNIVAC any machine

Contract and Permanent Personnel Needed

Tel: Paris 544 0855 or write with phone number and c.v. to
Alen Husselbee, Informatica
40 rue des Saints Pères
PARIS 75007

KUWAIT
SYSTEMS ANALYST
£18,000 P.A. TAX FREE (NEGOTIABLE)

Our clients are a major Kuwait group of companies with multi interests throughout the world, including Construction, Banking, Finance and Real Estate.

Their Construction Division, based in Kuwait city, has its own IN HOUSE computer. A SYSTEMS ANALYST is now needed to examine their current software systems to conduct feasibility studies to incorporate new facilities, then implement and maintain the new systems.

Candidates should be aged 30 35 with relevant qualification and experience in Systems Analysis probably with a Programming background. Knowledge of software in relation to construction activities, such as planning, resourcing and costing will be most helpful.

Benefits of employment include fully furnished married or single housing, company car, 2-year contract with paid home leave, etc.

For full details phone

Mr. P. Luby on 0202 431711
OR post C.V. to
GROVE PERSONNEL, 46 Southbourne Grove
Southbourne, Bournemouth, BH6 3RB (3210)

TRAINEE COMPUTER AND TELECOMMUNICATIONS ENGINEERS AND A REPAIR TECHNICIAN

UP TO £8,000 PLUS A CAR

Comshare is one of the top companies in the European computer timesharing industry with an intelligent data communications network which interconnects computer centres in North America, the United Kingdom, Europe and Canada.

Presently our typical Computer Systems consist of several large dual Sigma 9 mainframes with Ampex 512K 32 bit word memories and Honeywell 4,096K 32 bit word memories, Memorex disc drives, STC 6250 bpi tape drives and Data Products printers.

We are currently looking for

TRAINEE COMPUTER ENGINEERS AND A REPAIR TECHNICIAN

Engineers should have electronic knowledge and preferably some computer mainframe and peripheral experience.

A Repair Technician should also have electronic experience and be capable of fixing computer modules and power supplies as well as assisting with stores and spares.

We will provide Engineers with training where applicable, following which successful persons will become members of the engineering team which is involved in installing, commissioning, upgrading and maintaining our systems.

TELECOMMUNICATIONS ENGINEERS

Applicants should be highly motivated with HNC or equivalent in Electronic Engineering and a minimum of two years solid experience in a data communications environment.

You will join a team of professional engineers with full responsibility for the 24 hour operation of the existing data communications network. Activities will include installation and maintenance of network hardware such as mini computers, multiplexors and modems. Ability to fault-find to component level is essential.

These new opportunities offer career advancements to men or women in a fast moving environment, where exciting plans are shaping for further expansion into Europe.

Starting salaries will be up to £8,000 plus a car with overtime payment, and the fringe benefit package includes BUPA, LVs and a good pension scheme.

For Computer Engineers and Repair Technicians, contact Pete Mills. For Telecommunications Engineers, contact Ray Miles, both on 01-351 4399. Or write to them at Comshare Limited, P.O. Box 197, London SW3 5RL.

COMSHARE
Making the computer make sense.

OFFICES IN LONDON ABERDEEN BIRMINGHAM BELFAST BRISTOL CARDIFF EDINBURGH GLASGOW HENLEY LEICESTER MANCHESTER SHEFFIELD WAKEFIELD WARRINGTON WASHINGTON WINCHESTER BELGIUM FRANCE GERMANY HOLLAND CANADA UNITED STATES JAPAN

WE'RE MOVING

NOTICE TO CLASSIFIED ADVERTISERS RE: CHANGE OF ADDRESS

With effect from November 7, 1980, COMPUTER WEEKLY will be moving to Sutton, Surrey. From this date, classified advertisers should send their material to the following address:

CLASSIFIED DEPARTMENT
COMPUTER WEEKLY
QUADRANT HOUSE
THE QUADRANT
SUTTON
SURREY
SM2 5AS

TELEPHONE: 01-661 0121
TELEX: 892084 BISPRS G

CALMA

INTERACTIVE GRAPHIC SYSTEMS
A division of United Computing Systems Inc.

Is an American-based company specialising in the production of computer systems for design applications. These applications cover integrated circuits, printed circuit boards, mapping and mechanical design. We are growing rapidly and have recently opened a new European customer support facility located in Kingston, Surrey. To support the expansion, we require the following staff

1) SENIOR HARDWARE TECHNICAL SUPPORT ENGINEERS
Applicants should possess several years' experience as computer field service engineers. Experience in minicomputers or plotting equipment *would be particularly relevant*, c. £8,500 + car

2) HARDWARE REPAIR CENTRE TECHNICIANS
Although previous computer experience would be desirable, applicants possessing a sound practical and theoretical grasp of electronics would be acceptable, as full training will be provided. c £7,500

3) DIAGNOSTICS PROGRAMMER
This position is likely to suit either a very experienced Technical Support Engineer, possessing an aptitude for programming, or a Systems Programmer with a keen interest in hardware

The work will involve writing and control of all types of diagnostics and provision of technical support in situations where the exact nature of a problem requires definition c. £10,000 + car.

4) HARDWARE TRAINING INSTRUCTOR
Required to set up a training department from scratch. Successful applicant is likely to be already employed in this capacity, and have extensive computer experience. Should be a good communicator and capable of planning training for a diverse range of products c £9,500

Conditions of employment will reflect the high grade of people being sought and will be very competitive

PLEASE CONTACT: CALMA COMPANY, NEVILLE HOUSE, 55 EDEN STREET, KINGSTON-UPON-THAMES, SURREY (3266)

GUIDE TO RECRUITMENT CONSULTANTS IN THE U.K

LONDON & H. COUNTIES (LH). MIDLANDS (M). NORTH (N). SCOTLAND (S). OVERSEAS (O)

NORTHERN IRELAND

ALL COMPUTER STAFF NEEDS
— ESCO Management Consultants Ltd
Professional, reliable, confidential
Write to 77 Botanic Avenue, Belfast BT7 1JL, or phone Belfast (0232) 48088 (2882)

Ivor Norton Management Services Ltd
Recruitment Consulting Division
52 Shaftesbury Avenue, London W1V 7DE
01 734 8882 (24 hour answering service)
P.O. Box 53, Copthall Tower House, Harrogate HG1 1TS. Tel. Harrogate 66828

FOR CLIENTS AND APPLICANTS IN UK AND OVERSEAS.
CSA
Alex Daly
COMPUTER STAFF APPOINTMENTS
134 St. Vincent St., Glasgow
041-221 4166/9
Also at Edinburgh and Aberdeen

COMPUTER INDUSTRY SPECIALISTS
SALES • SYSTEMS • MARKETING • ENGINEERING • PROGRAMMING
INSIGHT MARKETING & PERSONNEL CONSULTANTS LTD.
AUSTIN HOUSE, CHARLOTTE STREET, MANCHESTER. TEL. 061-236 7026 (N)

Computer Professional Recruitment Consultancy
"COMPUTER PROFESSIONALS — MAKE SURE WE HAVE YOU IN MIND"
Head Office 0532 774040 — Evening Bramhope 580
061-228 1354 — Evening Glossop 64099.

TEMPORARY AND PERMANENT COMPUTER PROFESSIONALS
John Goldsmith North
(2868)

FOR THE BEST PERMANENT AND CONTRACT JOBS IN THE NORTH OF ENGLAND
Victoria Appointments
24 Mosley Street
Manchester 2
Phone
061 236 7319 or 7417
061 440 8134 (Home) (N)

ALL COMPUTER STAFF NEEDS
ESCO MANAGEMENT CONSULTANTS LIMITED
77 Botanic Avenue
Belfast BT7 1JL
Tel: Belfast 48088
Professional, reliable, confidential

D.P. Permanent & Temporary Recruitment
MANCHESTER — Maureen A. Ingle — Tel: 061-236 7036
LEEDS — John Kilvington — Tel: 0532-448685
Minerva Computer Personnel
A Division of Hoggett Bowers & Partners Ltd

FOR FURTHER DETAILS OF THIS WEEKLY FEATURE CONTACT OWEN KELLY 061-872 8861